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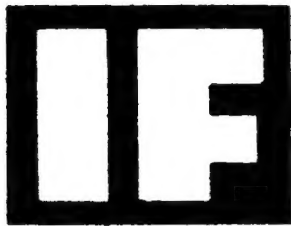


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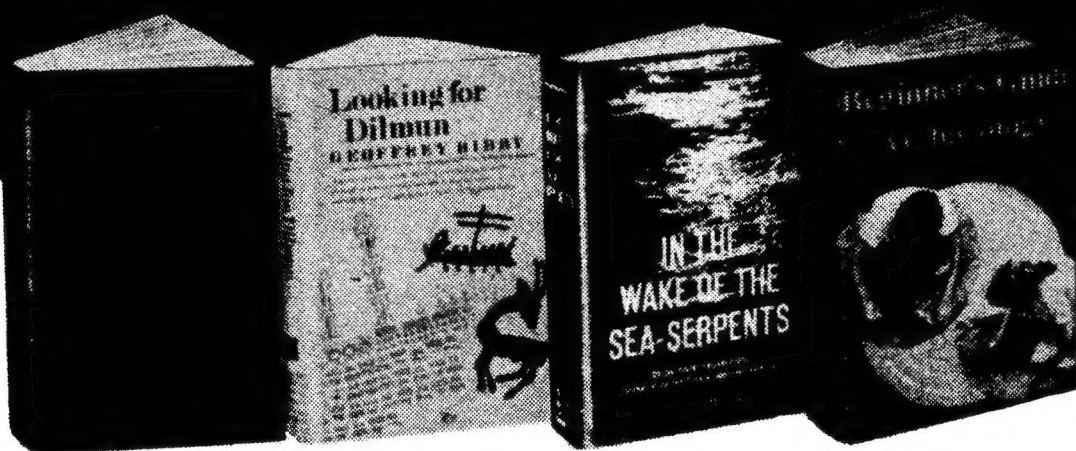
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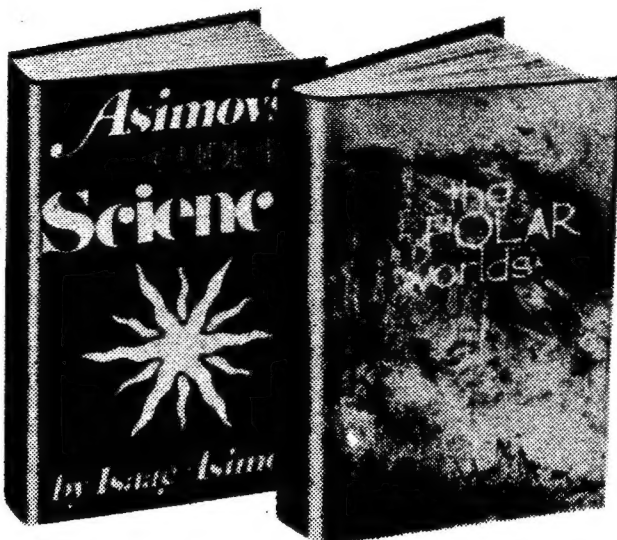
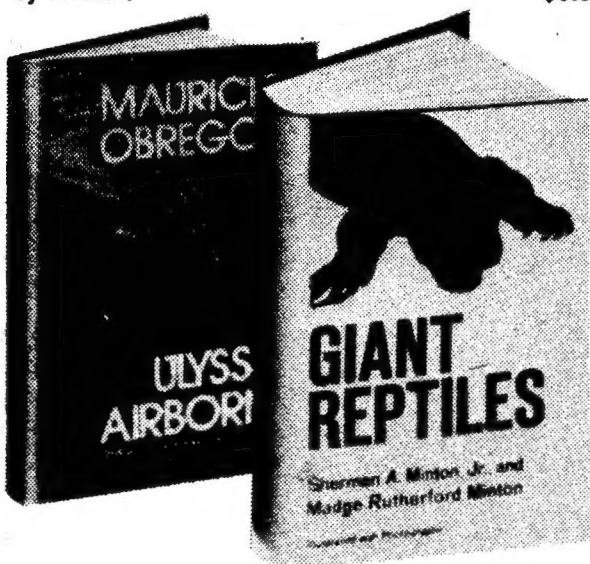
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EDITORIAL

GREETINGS, Gentle Readers. I am the bearer of somber tidings. This is the last issue of *Worlds of IF* as a discrete entity—at least for the time being. As of January 1975, *Galaxy* and *Worlds of IF* will be combined into a single monthly magazine.

The reason? A simple one: we ran out of paper—the kind of paper we can afford to buy, that is. We still have access to quantities sufficient for one magazine, but not two. (If we tried to put out a book with the next-higher grade we would go broke in nothing flat.) Subscribers: those of you with subs to both *Galaxy* and *Worlds of IF* will have them extended the appropriate number of issues.

But be of good cheer. The rowdy, fun-loving spirit I have striven to infuse into this magazine will not be lost, but will sound in clear if muted tones in a fusion of the best of two worlds—the best of *Galaxy*, which has long stood for intellectual and esthetic pre-eminence, and the best of this magazine. And surely I don't have to tell you what *IF* is all about!

Here are a few of the contributions to that new magazine that otherwise would have appeared in *Worlds of IF*. *The Alien Viewpoint* of Dick Geis will continue to delight and enrage you on a bi-monthly basis. *The Editor's Page* will also maintain a bimonthly presence, as will *SF Calendar*. *Sign of the Unicorn*, a new *Amber* novel by Roger Zelazny (this year's WORLDCON Guest of Honor) will first see print in the new *Galaxy/IF*. A new Mack Reynolds story. A new Chandler. A "Berserker." And, (as the saying goes) much, much more!

So. Life goes on, even if magazines don't always. See you this January in the (new) *Galaxy/(IF)*—the best science-fiction magazine in the world!

—BAEN

THE DESCENT OF MAN

*Man, proud Man, stands at
the apex of a billion years
of evolution . . .*



J. A. LAWRENCE

WHAT Mellett liked about Knabe was that he was an archetype. The bulging forehead, vague blue eyes, the omnium gatherum of garments, all proclaimed his Genius; which, moreover, he undoubtedly had. His inventions had provided him with sufficient funds to establish a private laboratory in his town house, complete with autoclaves, refrigerator-freezers, electron microscopes, a workshop, a qualified assistant—and even a power plant installed when the professor had become annoyed with the interruptions in Springfield's electric power. Graduates of Springfield High rarely achieved such status, and Mellett was proud to call him friend.

Regrettably, Knabe had neglected to provide himself with the requisite Beautiful Daughter. However, his assistant Miss Lockwood was a splendid substitute, if a little intimidating.

Mellett knocked twice and pushed open the door leading to the basement laboratory.

"Hello, Eschsholzia," he said shyly. The beautiful redhead in the immaculate white coat glanced up from her microscope, smiled, and

waved her hand toward the inner door. Mellett sighed. Sometimes he thought he might actually work up the courage to ask her to dinner, if she only indicated that she could spare a minute to be invited. Today was standard issue.

"Knobby here?" he asked, resigned.

"Back room," she said, concentrating, one hand taking notes while the other adjusted the instrument. "See you later." Aha! Things were looking up. With a light step he made his way around the desks piled high with dusty papers, crockery, astrolabes, armillary spheres, electro-encephalographs and other scientific detritus, to the workshop door.

"Did you bring the transtemporal potentiometers I asked for?" Mellett looked for the scientist, and then spied him on the floor under a heap of wiring that filled one end of the room.

"They haven't invented them yet, Knobby," he said mildly. "Sorry."

"Hell and damnation. Oh, well, I suppose I can . . . yes. This one and . . . there—wait a minute—could do the job . . . blast! Why do they make screwdrivers so badly? This one's gone loose in the

haft . . . There!" He scrambled out from behind the Invention and drooped toward Mellett. Today his socks were odder than usual; one of his ankles was bare.

"Aren't you going to tell me what it is?" said Mellett. The last one had been the (M)agnetro-(A)drenalo-(K)inem-(E)lectronic Ultra-(P)acificator, which, when broadcast over short-wave radio, had precipitated a world-wide peace treaty and the voluntary propulsion of all weaponry into the sun. The only ill effect was a slight increase in the pulse rate due to interference with the sunspot pattern, which had lasted about thirty seconds. His previous achievement had been the Medullary Acceptor Neo-Nutrient Alimentory, which created a delicious and completely nourishing pastry out of waste plastic. Mellett could hardly wait.

"All ready to go. At last. It's taken much longer than I anticipated—I must have been working on it for over six months now. Tch-ch." The great scientist frowned.

"I know. I've been counting the minutes."

"Tut, Robert, never do that. Not unless you were using the (C)hrono-(L)ymphometric (O)steo-(C)ircadian-(K)inesimometer—did I give you one?" He scratched the shining, bald expanse of his head.

"Yes, Knobby." Ruefully, Mellett recollected the massive object in its tasteful teak casing that oc-

cupied most of his bedroom. It kept subjective time and had no alarm; he rested his Baby Ben and hair-brushes on it.

"Now, that's time-keeping," said Knabe, with simple pride. "Where is that girl? She's never here when I want her—GIRL!"

"She seems to be working. Can I substitute?"

"No, no, now we celebrate. Miss Thing—Jones!"

Mellett said reproachfully, "Really, Knobby! Her name's Lockwood. Eschsholzia Lockwood. You ought to know it after three years."

"What d'you think I pay the girl for?" said the scientist irritably. "It's her job to keep track of details . . . ah."

"Yes, Dr. Knabe?" The burnished copper hair, the alabaster face peered through the doorway.

"Drinks. It's done."

"It's done?" She stood still, the beautiful green eyes widening. "Does it—does it work?"

"Of course it will work. All my inventions work. Get us something to drink, there's a good girl."

Mellett tried not to be offended, on her behalf, at his manner. Here was a girl, as intelligent as she was gorgeous, a Ph.D. working as secretary, receptionist, assistant and bottle-washer. He had seen the flare of resentment, quickly controlled, in the emerald eyes when Knabe was particularly peremptory. That she understood what the

scientist was doing, and kept the lab supplied with what he would be needing before he needed it, he took for granted. Sometimes Mellett could almost dimly perceive what Women's Lib was about . . . but then, Knabe was not a Man; he was a Genius.

She returned with a tray holding three beakers of foaming liquid.

"Hot buttered ethanol," she said, handing it around. It wasn't bad.

When they had toasted the success of the pile of wires, Mellett said, "Well, aren't you going to tell me about it? Apparently Miss Lockwood already knows."

"I haven't told anyone yet." Knabe gave a deep sigh and inclined his head. "You know that the human brain is unfinished. Millions of neural pathways await the final evolution of Man . . . unlimited potential—and what the brain's capacity actually is we are about to discover. This—" he waved his bony hand at the jumble—"is the prototype of the Maxi-Encephalo Synaptic Stimulator; it will open the doors of the mind of man to his ultimate destiny!"

Mellett was impressed. Eschsholzia broke the silence.

"You're sure, Dr. Knabe?"

"Of course I'm sure."

"Then I want to volunteer."

"You?"

"Me. Why not?"

Why not indeed, thought Mellett

admiringly. What a remarkable woman! What strength of character!

Knabe mused. "Well, I'd thought of . . . using a brain that had reached the possible optimum . . . I hadn't really . . . no offence, but . . ."

Mellett exploded. "What's the matter with you, Knobby? What more do you want? Miss Lockwood has everything—beauty, brains, good sense, balance—you couldn't do better!"

"Why, thank you," said Eschsholzia, blushing.

"All right, all right. But—well, let's see. Can we make it Thursday?"

His secretary confirmed the appointment.

ON THE way out, Mellett said, "May I take you to dinner?"

"I'd be delighted," said the girl.

Over the meal, he was bold. "I've been thinking it over. I don't think you ought to go through with this."

"Why not?" she said, surprised.

"It could be dangerous, fooling with your brain."

She laughed. "Nonsense. He was going to try it himself, and he wouldn't risk his own head. No, I'm tired of being a second choice—ever since I discovered that a woman has to try twice as hard to get half as far, I've been waiting for a chance like this."

"But—well, I don't like it," said Mellett stubbornly.

She sniffed. "I suppose now I get the line about how you don't want to change me."

"Well, yes. You're almost too much woman now—I mean, what chance would I have if . . ."

"You could have the treatment too."

"I—" he stopped. Did he . . . no. He just didn't have her guts.

"You see?" she said. "Some of us have nothing to lose . . . Besides, what could you offer me that would make up for the opportunity to develop everything in my head? . . . Oh, don't take it to heart. No mere sexual relationship could compete."

She sat starry-eyed over the coffee. "What will it be like, I wonder? The functions of the brain so manifold, the future evolution of man so mysterious . . ."

WHEN the electrodes were removed from her still, partly-shaven head, Mellett dropped the copper curl he had been stroking in panic.

"You've killed her. Oh, God, get a doctor . . ."

"Be quiet. She's all right. I wonder if those potentiometers . . . No. She's coming to."

They placed her on the decrepit old couch to recover. She stirred. Mellett watched anxiously for any flicker of motion in her pale face, while Knabe puffed serenely on his pipe.

"She's moving," said Mellett.

"Yes. Hmmm."

"Oh, Eschsholzia, how do you feel?" Mellett dropped to his knees on a pile of cable beside the couch.

"All right . . . My head. Feels funny. Leave me . . . alone a minute . . . UGH!" She retched.

"What is it? She's ill—Knobby, get the doctor!"

She said faintly, "What is that stink?" The men sniffed; tobacco, ether, disinfectant, ozone; nothing unusual. She gasped, "Air! Open . . . window!"

Knabe went to her, while Mellett wrestled with the cellar window, finally breaking the catch in his efforts to open it. Fresh air and soot poured in; she started to take a deep breath and began coughing.

"Let's get her upstairs. It is stuffy down here." Mellett lifted her, still gasping, and carried her up to the front parlor where he laid her gently on the sofa. He flung open the casement.

"That better?"

Her breathing was a little easier. She said, "Oh, that horrible smell. Can't you do something?"

To Mellett the air seemed fresh and clean. There wasn't even much traffic outside the house.

"Hmm. Unanticipated effect, but predictable," said Knabe interestedly. Eschsholzia seemed quieter, although her enchanting nose remained wrinkled with disgust. But she had almost stopped coughing.

"Would you like anything? A drink?"

"Some water, please." The water, eagerly swallowed, caused a choking fit. "It tastes like the smell. Funny; I suppose the process affected the olfactory nerves?"

"Yes, certainly," said Knabe. "All sort of connections will have been affected. You'll stay here for a few days so we can keep complete notes . . ."

"Oh, no," she said faintly. "I couldn't."

Mellett said, "It's all right. Knobby's perfectly safe."

She threw him a look of sheer impatience. "Oh, for heaven's sake. It's the smell, and the water. I want to go to my weekend place, out of town. I have a cottage my brother left me . . . *must* you smoke?" Knabe put down the pipe he had just taken from under the chair cushion.

"Then, I will go with you," he said. "Do you think you could get up yet?"

She sat up, slowly. "Yes . . . it's okay. My head feels woolly and sore . . . but I must get away from this odor."

Mellett's car didn't agree with her, either.

THE next day, when Mellett called with a bottle of wine to see how she was, he found Knabe well into his second notebook, sitting at the kitchen table.

"Fascinating, fascinating," he

said, waving the pencil about.

"Had you noticed that? Is she all right?"

"Oh, yes. Remarkably healthy specimen. The early effects are wearing off. I expect great things."

"Where is she?"

"Up there." Knabe gestured vaguely toward the ceiling. Assuming that he meant the upstairs bedroom, Mellett started to the staircase.

"Hi, Bob!" He looked around.

"Up here." She was hanging by her knees on the thick wooden curtain rail.

"What are you doing up there?" said Mellett, swallowing nervously. She wore a green bikini.

"I was having a nap, of course." She dropped, landing gracefully on all fours.

"A nap?" he said blankly. "On the curtain rod?"

"Mmm. Much more comfortable."

"Er—how's the smell problem?"

"Pretty awful—but I've learned how to turn it off with breathing a certain way. Otherwise I feel quite pleasant. I see and hear much better." She padded with bare feet toward the kitchen. "I'll get you something nice to drink. I've just discovered it."

Mellett watched the retreat of the green bikini in rapt admiration. Suddenly, she jumped in the air and came down facing the opposite way, her back to the corner, semi-crouched.

"What's the matter?" he said, startled.

Her hands dropped from the defensive position and she stood up. "Oh, it was just a plane passing over. Sorry. Be right back."

Knabe said as he wandered in, "Don't expect alcohol. She doesn't approve of it."

It was, in the event, milk, which seemed to be mostly cream.

"Isn't it lovely?" she said. "Oh, Knobby, that caudal reflex again."

"C-caudal reflex?" Mellett hoped he didn't understand.

"I keep wanting to move my tail, especially when I like something as much as this drink," she said.

"Look, just what have you done to her?" demanded Mellett. "What has her . . . er . . . tail got to do with the expansion of the brain?"

"It's still too early to tell," said Knabe. "She's very healthy. I am keeping complete notes."

"Besides, I'm having fun. I never felt so good," said Eschsholzia. She sat, a fluid motion, her legs curling under her.

Mellett discovered that the combination of milk, unexpected behavior and exposed Eschsholzia was making him nervous. She seemed as intelligent as ever, and somehow there was a great deal more of her physical presence. He withdrew, promising to call again.

THE next time he brought roses. "She's out in the garden," said Knabe, who answered the door. A



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preoccupied frown had taken up residence between his brows. "I don't mind admitting, Bob, I don't quite understand it."

Fortunately, the garden was secluded. Eschsholzia was there, all of her. The bikini was nowhere to be seen. Eschsholzia was—"Wow!" said Mellett reverently.

"Yes, yes," said Knabe. "But—well, go and talk to her."

She was rolling in the grass on her back. Mellett swallowed and started for the back door. "I don't think I can. Talk. I'm not used to . . . couldn't she put something on?"

"She won't. She has refused to wear clothing for two days. She says it irritates her. It's a good thing it's summer."

In a futile attempt to dim his vision, Mellett donned his sun glasses. At least the look in his eyes wouldn't embarrass him. She was a natural redhead.

"Hello!" she called, sitting up. She shook cut grass off her shoulder with a spectacular wriggle. Mellett's sun glasses fell off.

"You're turning very red," she said. "Too much sun already? Damn! I've got a thorn." She brought her toe to her mouth and pulled at it with teeth and fingers. Mellett fumbled with the glasses—the earpieces seemed to bend the wrong way—and finally replaced them on his slippery nose.

"Er—. Hello. How is it?"

"It's—" She gnawed at the toe. "—great. Oof. There." She gave the toe a last soothing lick and put it down. "Knobby's all twitchy. He doesn't like it."

"Doesn't like what?" said Mellett cautiously.

"What's happened, his machine." She lay back and nibbled a long blade of grass. A hoverfly lit on her thigh; the skin twitched and it flew off, followed by the sun-glasses.

"Do you know yet?" said Mellett, trying to keep his eyes closed.

"Oh, yes. He was wrong, for once. He'll never admit it though. He's blaming it on the transtemporal potentiometers, but that's just an evasion."

Averting his eyes, since she was now stroking her nipples with the grass, Mellett mumbled, "What is it, then?"

"All those unused portions of the brain . . . they're not future poten-

tial, they're evolutionary discards . . . I have all the reflexes, senses, instincts and so on that we lost in evolution. I can smell people several streets away. I expect I could catch fish with my hands . . . I can move *fast*. Look!" She sat up, her hand flashed out and closed. She brought it nearer to Mellett, who had to look, and opened it. Released, a gnat darted off.

"But that means . . ."

"Poor Knobby. Yes. Man's brain is evolved as far as it ever will, we've reached the end of the road. Pity. But there it is . . . What unusual animals men are! I'm not in heat just now so forget it."

Mellett felt himself turn bright scarlet; and ran. In the cottage Knabe was staring morosely at a glass of creamy milk. He said, "Did she tell you?"

Mopping his streaming face, Mellett said, "Yes. But she says you don't believe it."

"How can I? It's not possible. The brain is designed to develop much further than—this . . ." he stared helplessly at Mellett.

"Maybe it's not so bad. She doesn't seem to be exactly suffering . . . and after all, she hasn't lost anything."

"Oh, she's all right. A healthy animal. Never mind her . . ." He lowered his voice. "I always did think women had limited cortical capacities. I meant to try it on a man first. That would prove me right."

Mellett looked out of the window again. Eschsholzia was lying stretched out in the sun, arching her back to the warmth, gloriously desirable . . .

"Me," he said firmly. "Now's your chance. Come on." Knabe blinked, called to Eschsholzia that he would be back shortly, and at the determined pressure of Mellett's hand at his elbow allowed himself to be driven back to the lab.

"MY HEAD aches. And does it stink," said Mellett faintly. "For Christ's sake, put out that pipe. Yecch."

Something had to be done about the air or he would be sick. Suddenly the process became obvious; he closed off the passage back of his nose and breathed through his throat. The smell subsided; but it was harder to talk.

He rested for half an hour. Knabe said, "I shouldn't leave Miss Jones alone much longer. We'll have to get back to her place."

Smiling, Mellett said, "Fine. Let's go." He stood up carefully. What a mess this place was—the Maxi Encephalo Synaptic Stimulator all over the floor, dust, beetle dung, insect footprints all over the walls and ceiling. Ugh.

Eschsholzia came to the door holding a towel. "Oh, it's you," she said, tossing it on a chair. Cautiously, Mellett re-opened his newly

sensitive nose. She was gorgeous.

But strangely, his feelings were warm, tender, admiring, without the tension of desire. She really wasn't in heat.

Two days later, they told Knabe. "We're sorry, Knabe, but it's true. Those doors in the brain open backward. *Homo sapiens*, as he stands in stocking feet, is it."

Grimly, Knabe packed up his eighteen filled notebooks and one dreadful sock. "It was the potentiometers. I know it was. No more makeshifts. I shall have to invent that and start again . . ." He stumped off, muttering, and hailed a taxi.

Together, Mellett and Eschsholzia waved good-bye. "Maybe we should have told him about the water."

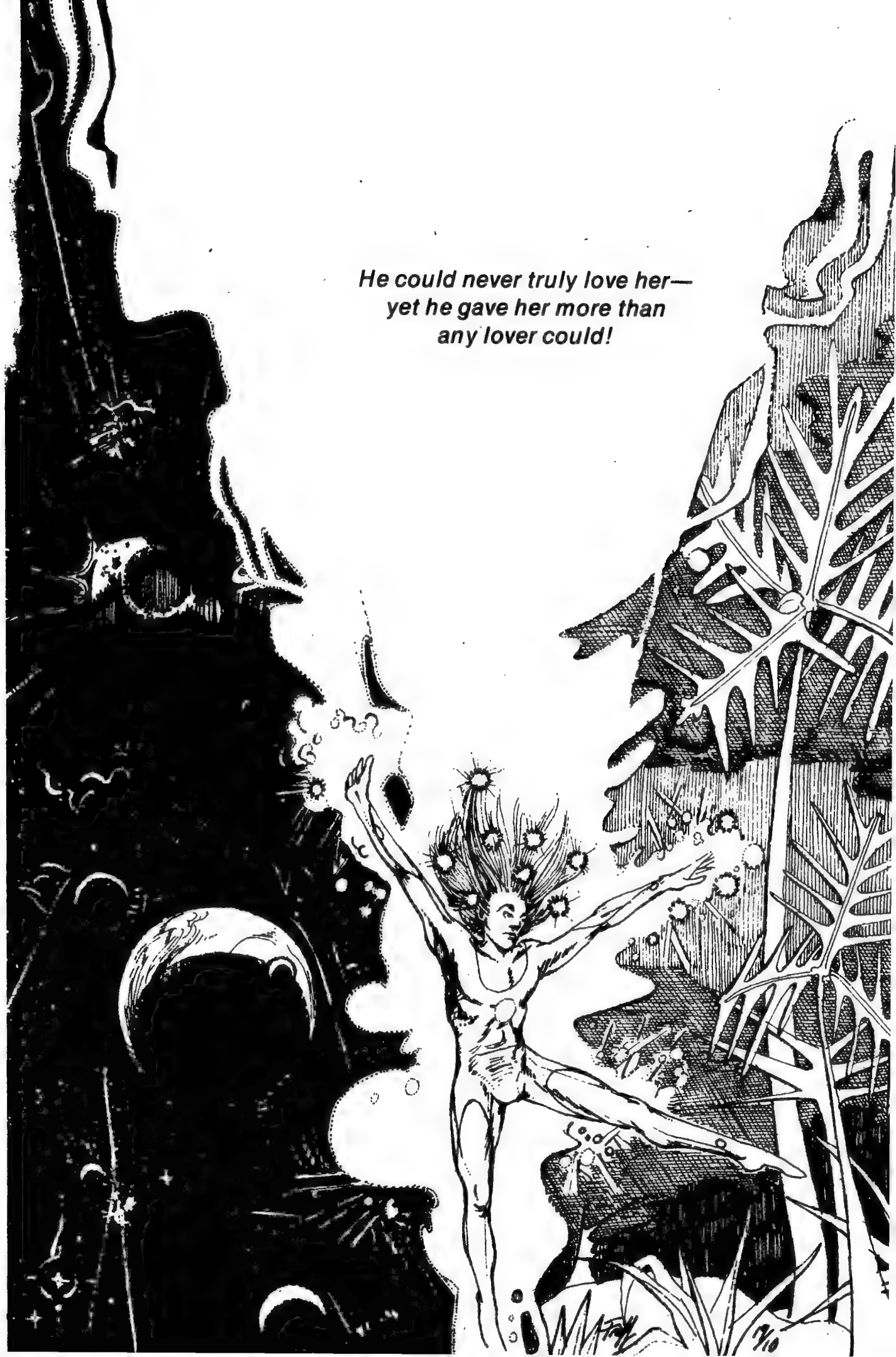
"No," she said. "It would have been too unkind. But what fun it's going to be! I always wondered what it would be like to be amphibious!"

"And what a way to make a living! That Dolphin Research Group is ready to pay us anything."

"So they should. They won't find a team with our qualifications anywhere else!"

Laughing, they ran out into the garden and licked salt off each other's backs, basking in the sun. As Mellett rolled over and nipped her ear, she whispered, "Hey, I think . . . I think I'm coming into season."

*He could never truly love her—
yet he gave her more than
any lover could!*



STORMY WEATHER

DANIEL DERN

THE Thursday evening sun burrowed down under burning clouds as the autumn winds began to blow, and a cloak of chilled darkness settled over the Vermont horizon. In the cabin by the trail overlooking the field, Rachel puttered around, unpacking the bag of groceries into the cabinet and shaking her sleeping bag to fluff out the down. Matty had driven her there that afternoon and left her, plunked on the edge of the Appalachian Trail. Until Matty returned on Saturday morning,

Rachel was free, alone with mountains covered with the impossible riot of Vermont springtime. Greens, reds, purples and yellows; in clumps and mosaics, a sight so overpowering as to be unreal to eyes grown in the city and used to nature only in small doses. A row of bushes. A concrete-circled tree. Now there were no people and no expectations, nobody tapping their foot while she took time to breathe.

She stood still and closed her eyes, unable to comprehend the release that filled her. Nobody ask-

ing, nobody demanding. She could go to sleep when she pleased, and never wake up. Not feel something was wanted from her. Not deny her feelings of waiting, waiting for twenty-one years for someone unknown to give her something she needed, something everybody else had but she couldn't see. Here no one watched, here she could play her flute, press her face to the grass, draw cartoons on her legs, wash or not wash her hair—*her* life again.

To do anything she pleased.

Whatever *that* was.

YESTERDAY somebody had come to borrow a dictionary—a girl from the other end of the dorm, in the usual tennis shorts and halter. And then her roommate's boyfriend stopped in, annoyed because his car needed new tires, and Mark had shown up while she was working on a paper and ended up dragging her to a mild party where he sat in a corner and looked depressed, so clearly waiting for her to talk to him, and—

Somewhere it became too much, and she snapped. Back from the party, needing a shower, Rachel was sorting her psych notes when the dormline rang. She stared at the *blrring* instrument, not moving while it rang, waited, rang. Then she lunged for the closet, jerked out her backpack, stuffed in clothes and toothbrush and flute, pulled

the straps tight over her shoulders and ran through the warm starry night to Matty's dorm as the wind scraped leaves along the street behind her.

She spent the night in mad dreams and cold, clammy sweat, and woke unsure of where she was. Matty announced they could borrow her uncle's hill house off in the country, she'd called and it was okay. While Rachel frowned Matty tossed the backpack into the rear seat next to the grocery bags; when Rachel was almost decided Matty prodded her into the Volvo's shotgun seat, sat behind the steering wheel and stomped the accelerator, swerving through the wild-colored hills with manic glee. The city dropped away, the fields were filled with cows and dandelions, and then there was nothing of the outside world left save the fading putter of Matty's Volvo.

Now Rachel could sleep or sing, commit rash acts without listening for judgments. A black bird with red armpits had paused on the fence. The stream gurgled clearly over each patch of stones, making subtly different splashes in every place. The cows raised their rumps and dignifiedly trudged home. Rachel had napped for half the afternoon as the wind fanned the colored tips of the trees before her like a eunuch wielding a peacock's tail. Then the clouds came, waking her with their shadows, and she returned to the cabin.

RACHEL stepped barefoot into the night. The sky was completely covered by clouds, the outlines of the mountains identified the thicker shadows. Several fireflies flitted about, like the spirit of some ancient machine released from its bottle. The wind blew through her sweater and prickled her arms. Branches flapped, leaves fled the ground in circling flocks. A peal of thunder broke beyond the mountains. Then the landscape lit up, and thunder rolled again. Rachel heard, then felt, rain. A wet kitten's-paw batted her nose. She held out her arms and began to dance. Right forward, left side, together, stomp; right forward, left side . . . she chanted the modal melody and led the line of dancers around in interwoven circles as the sky crumbled above her.

And far beyond the storm, a man almost passed by. He was going from *here* to *there* when there was a disturbance, an unexpected belch in the fabric of complex space, and suddenly (as perception goes) he was falling into space. To us he would have looked unprotected, naked and sure to die, but he was not in danger for this reason. A mesh of energies enfolded him as a lobster's shell surrounds the softer flesh, linked with him in proper manners to make space his natural environment; he survived, he perceived, he acted. By luck, he had not been killed in the exo-spatial earthquake. But it was closer than

it should have been, and now he was in trouble.

This—we shall call him a man, and then call this man Muldaur—he realized he was hurt, and probed for a place to make an emergency landing. Reflexes took over, feeling the tugs of gravity wells, smelling atmospheric qualities, sorting the cocktail-chatter babble of information that filled our solar system. Asteroids grunted and satellites gossiped like housewives; the planets frowned and harumphed, and the sun chortled happily, throwing out streams of electromagnetic confetti as it jiggled its plasma playtoys and watched the elements build. Training selected actions without conscious thought, guiding Muldaur's fall from nether-space into our 3-space in a jerky cosmic downshift that left him hurtling at Earth in a roughly matched orbit and velocity. And still falling, tumbling. Muldaur flexed his "wings" as he whipped around the Moon, trying to slow and steady himself. He began scanning the planet "below" him with his many senses. Spots on the surface registered; where we would have seen only vast expanses of cloud layers and swathes of blue and brown, he sensed the great concentrations of life, energy and motion. Paris . . . Moscow . . . Tokyo . . . Los Angeles, Chicago . . . New York. Muldaur didn't know these names, of course. But he veered downwards,

diverting energies as best he could to safen his fall. He glowed. Those who watched the sky thought they saw a falling star. Some old men heard meteor whistles of radar shriek in their fillings, and shook their heads.

And just when Muldaur was almost down, slowing himself as best he was able, he rode an energy braid into the center of the thunderstorm. His ionized protective web drew half a dozen bolts of lightning, revealing the countryside with brief flickers of day. He jerked and twisted in midair. The bolts disrupted his already wavering neural controls so completely that he *fell* the rest of the way down, shot with pain and fear.

Had he not been a bit awake when he hit the ground, he would have died.

As it happened, he lived. And celebrated this success by fainting.

RACHEL woke in the morning to the far-off lowing of the cows. She pulled her arms out of the sleeping bag and stared at the dark wood beam above her. Sometime during the night the roof had stopped making rain sounds, and she knew without looking that it was going to be a bright day. She closed her eyes to try and recapture her last dream, but it was gone, so she pulled down the zipper and got out of bed.

Quickly pulling on her shirt and

jeans, Rachel paused in the kitchen only long enough to swallow some orange juice straight from the bottle. Then she ran outside.

The grass was deep green in the morning sun, and the ground so wet as to almost be muddy. The stream ran with greater speed and bulk. Rachel moved her bare feet from stone to stone until she reached a certain spot, then knelt to drink. As she cupped her hands, her eyes caught a wavy spot of motion farther along the stream, a faint blurring like heat shimmer from an overheated car on a hot day.

Muldaur, crumped on a bush, breathed weakly. He had not wakened or moved since his fall. The shimmering indicated that his automatic nerve reflexes continued to work. But of course Rachel did not know this, nor did it occur to her to stop and think. As soon as she saw the folded figure, she ran to it. Something told her there were no broken bones, and without hesitating she shouldered the unconscious body with a fireman's carry and headed back to the cabin.

MULDAUR was in a basket woven of fire. He was held down by a strange gravity and filled with unfamiliar air. When he was awake enough to realize he was conscious he caught his breath, only to have his stomach muscles branded with pain. He gasped. Then he withdrew and observed.

His body was full of wrongnesses which blinked. They hurt, too, but the pains were receding. So his by-passes were on the job. He was tired and drained, bruised, battered, and downright miserable. However, that could all be cured by food and sleep. There seemed to be no damage his body could not repair. Given the time.

Need signals for protein and energy began flashing. The awareness sent Muldaur into one of the sequences of checkout rituals. He chanted silently, touching his psychic frets and listening for the proper harmonics. His feelings of disorientation worried him far more than the wooziness; the energy patterns which wove his web and wings were his uniform and ship, protective device and sensory extension.

The diagnostic was not good.

Now what, he wondered. Still in the stretched-time quiet of contemplation, Muldaur reviewed various lectures they had given him when he was first training. He had never been caught in so extreme an emergency. Much guesswork lay ahead—if luck was with him. If he could work safely—if he could find—then his thoughts broke on a log jam. *Where?* He yanked at his memory. Sensations of falling, burning, caught like a canoe in a waterfall—the disturbance!—a blue and white disk spinning around a sun. Muldaur turned himself outwards again, still letting

his body work without direction, but listening. He felt an enclosed space, shells of cellulose, and little power or metal. Then he opened his eyes and tried to focus.

There was life close by. His adrenals were relaxed, saying, *Safe, don't worry, okay to lie still*, but he frantically rolled his eyes, ignoring the pain, until he found a face, a worried face, as human as his own. Looking at him with uncertain blue eyes. The reassuring hue of his own familiar flesh.

“GOOD morning,” Rachel said. Was this real? Could he understand her? Why had she brought him in, anyway? “How are we today?” she prattled, as if he were a wounded animal. He had been so still, and she could see the pain in his face when he tried to move. “Am I supposed to be a nurse or a reporter? Here, can you drink this—it’s water.” She moved closer to Muldaur, slowly, and brought a glass of water into his sight. Then she pressed the rim to his lips and let him taste the water. He let his mouth open a bit more, so she tilted the glass until he had swallowed it all.

What next, she wondered. I couldn’t have just left him. She rose and went into the kitchen. The water was too cold, and a thick layer of sugar remained undissolved at the bottom of the glass. She touched a sweetened finger to the—what was he, anyway? He

looked human, aside from the blue denim suntan and the way the hairs on her arm stood out when she came close to him. He wasn't much bigger than she was; she had lifted him without much effort. Maybe five foot eight, muscled lean like an acrobat, smooth-skinned face, gentle features. Her finger tingled as she pressed it to his lips; he closed his eyes for an instant and then seemed to nod for more. "You want this stuff?" Rachel asked, to make sure. The darker blue lips opened in answer.

Rachel pulled up a chair and stared at the man after he swallowed the last of the sugar-water. There again—*man*. Was it safe to assume *anything*? Would she kill him quicker by her care? How could she communicate with this—this obligation?

She looked again at his blue skin—no, that was like calling her own skin "white." She rubbed her wrist absently. There was probably a good reason.

Why bother at all? That was the real question. Hadn't she run away for just that reason? Everybody demanding, intruding . . .

But the question answered itself. *Because he needs me*. And even that was rationalization. He had been there, and she had picked him up.

Rachel found herself wondering, *where did he come from, who is he, what's this all about?* She sat up suddenly as she saw his eyes look-

ing at her. She looked back, and became aware of her charge as a person. *He's been thinking also*. Suddenly it all turned real. She started to back away, but he looked at her. *He doesn't understand, either*. She felt his uncertainty and his fear. Then she found herself moving closer, as if it would help understanding. She saw his stomach muscles moving under the grey-silver cloth that covered him like dancer's tights. Sadness overcame her that they couldn't communicate, and she rested her head on his chest. He breathed in, and out, and his heart beat under her ear. The shirt or whatever felt surprisingly soft. There was no sensation of static electricity on her head, although her arms still tingled. She closed her eyes.

There was a touch on her head, of hands. Muldaur had raised his arms until he was able to touch Rachel's temples with his fingertips. She felt the fingers brush her hair and tingle in her scalp. There were bright spots in her mind's eye at every touch, each a different color. The glows spread until they joined, and then began to hum. She felt herself falling, gently, drifting into sleep, watching herself from a distance as the forming images stopped needing her control. Words began to whisper in her ears, old lessons, lists, teachers pointing at blackboards, trips to the zoo where the tigers drowsed in their cages, her father calling out

the gears on the transmission, pages from a cookbook . . .

The images began to flow faster, louder; the demand grew greater and started to *pull* the words out. It all began to spin, and Rachel grew afraid. Tendrils reached out into her, forbidden parts, and she tried to scream. Then another force reached in and twisted the flow shut, making sudden silence, and the world went black.

THEN the hands stopped pressing and she sat up, shaking her head. The room was still spinning. Rachel closed her eyes, took a slow breath in and out, and looked down again. The red eyes blinked, and aquamarine lips smiled, showing regular, white teeth.

"Hello," he said to her slowly. "Thank you for your language. My name is Muldaur. Are you feeling correct? I am injured, but not ill. Perhaps there is more water? It has been—"

"Please," Rachel said. "Stop." What had he done? "I'll get you some more water. Stay there." What would she do now? She let the water run out of the kitchen tap, waiting for it to get cold.

The first hurdle is crossed, Muldaur thought. What a curious language! So imprecise, yet so expressive. His training and talents had enabled him to probe for the needed knowledge and absorb most of it in those brief instants he contacted Rachel's memory before his

weakened control grew too demanding and forced him to withdraw. Now his subconscious would integrate the information inherent in the language while he pondered the many objects in Rachel's world. *Earth, Sun, New York, New York, Brahms, Dangling Conversation . . .* he rolled the sounds on his tongue as the images and associations unwound in his mind's eye. Girl, star, running, grass, clouds, peppermint, dandruff. *This must be one of the Tammara colonies, long forgotten. She doesn't look too afraid. She's young. Good reactions, for an aborigine.* He frowned at this thought. *That's wrong. She is human. I mustn't trifle with her.*

The sugar and water had revived him somewhat, so he tried sitting up. *Too soon!* he thought as the pain forced him back down. *It's several—he searched for the local equivalent—yes, days 'ere I can stand. And fly away? Go to, Malidourt Muldaur Sellim'pse. Your energies are sore taxed, and you will tarry long.*

Startled, Muldaur shifted his thinking back into his own language. *Where did all that come from? Hmmm, yes, I must have tapped that without noticing. I'd best be cautious about that; this language has bad thoughts buried in it. So many words!*

I may as well organize all this while I'm resting. I'll have quite a report to file. Another lost colony.

Eighty-two percent standard gravity. Old sun, adolescent planet, exotic people. Where is my lady dispatcher tonight?

Muldaur ignored the problems inherent in the use of the word "tonight." Instead, he drifted into a memory of half a year ago, and gave himself over to his past self's being. The multicolored sands crackled at the touch of their feet, tickling them with snaps of light and static. Her tan was dark and smooth, and in the water her laugh glinted like sunlight. The soft sea creatures they called to came near, and they mounted, avoiding the blowholes, racing in the slow-falling waters until they grew tired of the chase, and collapsed back on shore. Their love play made a shower of sparks and crackles, doused at rhythmic intervals by the night tide, as they moved and whispered and exploded . . . yes, *that was us, then, that looks like her now, near . . .*

"Asleep again," Rachel muttered with approval, and set the glass of water down on the table.

WHAT *shall I do with him?* Rachel stepped outside, chewing on a sandwich and watching a trio of squirrels play hopscotch in the branches of a tree. She *could* just leave when Matty came for her in two days. *No I couldn't.* Take him with her? That would be good for a mess. What

had happened? There was all that shuffling in her head, and then he spoke to her. *Mel-darr. That's his name. How had he done that?*

The sky was clouding in one corner, promising more rain. The squirrels dashed away. A cloud shadow flowed along the hillside, turning the treetops briefly dark. *I wish I knew what was going on.* She turned and went back through the kitchen door. There she rummaged around until she found several packages of clear soup broth, and set the water to boiling. When the soup was done, she poured it into two ceramic mugs and carried them into the room where her skyblue starman lay sleeping.

HE SMILED at her when he woke, and smelled the still-steaming broth eagerly. "Thank you. I could eat something more solid, I believe. Did I tell you my name?"

"Mel-darr," Rachel said. "No?"

He corrected her pronunciation. "Mull-dour would be closer. Your language has the wrong phonemes. Your name I did not get, please?"

"You didn't?"

"I only looked in your speech and memory centers for the language, understand. So as not to intrude. Some are touchy, without permission." He grimaced. "There have been a few unhappy incidents . . . see, I acquire skill in your tongue with every, um, moment."

"My name is Rachel. And you

haven't told me how bad you are hurt, or where you came from or why you're here or—"

"Please." He waved a hand. "Indeed, it is a tale of length I should tell. Sit comfortable while I unravel, and then you can ask again, if you have more questions."

"Fine," Rachel said. She set the mug down and leaned back in the chair. "Hit it."

"Pardon?"

"Take it from the top, let'er roll. Didn't you get any slang? Go ahead."

Muldaur rolled his eyes. "I will assume you gave me leave to begin—Rachel. Yes. My full name is Malidaurt Muldaur Sellim'pse, which is my patron's—no, godfather seems closer—name, my personal name, and lineage, as well as the fact that my—parents—exercised gene selection which has been augmented by vo-vocational training and surgery. In my language the process is called *callopsei*, from *calee opesi*, or destiny of action. I was born about, well, a gross and some dozens of your years ago—pardon, about two hundred—but I am only some seven doz—eighty years aged, because of . . . hmm. Ah, yes. Relativity. Yes, good, that's the reason. And I've lived about one-fifth of my life span by now. So actually I'm but a little older than you, don't you agree?"

"Oh, definitely!"

"Anyway, I'm a workingman—a

messenger of sorts." Muldaur paused. "No . . . I'm getting words like telegram, envoy, special delivery, but they're too limited. Let me try to explain better . . ."

AFTER exploration (Muldaur said) communication and trade accounted for most of the intragalactic shuttling around. Tourist trades, government commissions, scholarly and scientific studies, all contributed to the constant flux of matter and information between star systems. Hauling cargoes and delivering messages made up the bulk of spatial traffic.

Methods of getting things from *here* to *there* varied tremendously within the galaxy, depending on technical sophistication, distances, times and priorities involved. One centuries-old firm sent its deliveries out in slow asteroidal form, while another twin-planet system used a short-rang pulsed matter transmitter for local import-export business. And so on . . .

The other problem was messages. Electromagnetic radiation is much too slow to talk between stars, and not reliable. Although near-instantaneous communication was becoming more practical as well as economical every century, there was still room for improvement . . .

"Meanwhile," Muldaur said, making a palms-in-front-of-chest-and-facing gesture, "one derives me. And the Interstellar Pony Express—is that right? Hold, yes, but

clumsy. Couriers. Bumblebees. Anagrams—crab! Do you see?" he asked, helplessly.

"I get it," said Rachel, trying not to giggle. "Please, go on."

"We're trained," he continued. "Discipline, surgery, *esprit de corps*. I am a body inside a cocoon, ganged to my lower cortex and as part of me as my arms and legs. It is part of me, non-material. Web, weaving, psycho-electric tapestry . . . I have roughly twenty-three senses above the regular nine, can ride the waves of space's energy—you're lacking words—in space I'm like a fish in water, wings of power. I glide above space itself, between the—the levels, seams, quanta—no!" He stopped again in disgust. Rachel wrinkled her nose as if it would aid her in understanding, while Muldaur grimaced again. "As I said. I carry messages, make negotiations, deliver mail, monitor conditions, patrol welfares. We have a glorious life, slipping out of spacetime, playing a role in it, doing and feeling . . ." His eyes unconsciously looked up as his voice trailed off. ". . . but I had an accident. I was riding the—I hit a . . . pothole? Thin spot? Hot bog? It surprised me . . . suddenly I was drained and snapped into space, and homed in on this planet to crashland, but then I ran through an ionic field—yes, a thunderstorm. Nearly burnt out my nervous system. *Mara stilo*, was that wild. Can't remember much

without doing a—oh, not again. I could, if I needed to. Take my word for it. They'll get it out when I report. And here I am."

"Yeah. Here you are." Rachel leaned closer. "That's all pretty weird, you know, I guess it makes sense. But so what? Here you are, with this story, and these words you've pulled out of my skull. And I've got you here. In two days Matty's coming back. You going to be all better by then? Or will this be weeks and months? I can just see it. What am I doing, having you here? I don't know anything about what to do. I don't want any part of it. I just want—"

"Rachel!" Muldaur reached out to take her hand. She jerked back. "Please. You're asking questions I can't answer. This is short. Please."

But she had collapsed on his chest again, sobbing. He stroked the back of her head, ignoring the pain signals as best he could. People! Females! Was there ever any chance of understanding this particular person, of really *touching* her. "What do you want me to say, Rachel? Tell me. I'm tired, and it hurts. And I don't have these answers."

She continued to cry. Muldaur realized she was crying for herself. He had not caused the upset, only triggered it. After a while he retreated a bit and went into the Griever's Litany, hoping the mood would project. Relax. Don't cry.

Enough is gone. Quiet. Relax. Shhh . . . there you go. Relax. Sleep. Good, good. Quiet. Peace. Sleep. Sleep. Sleep.

THE SQUIRRELS had come in by the open kitchen window and were nibbling at crumbs. Clouds now covered most of the sky; only the corner where the sun was setting remained clear. Rachel and Muldaur leaned against an oak. A solid meal had put him in good enough spirits to hobble outside, with Rachel's assistance. Neither mentioned her outburst earlier in the afternoon.

"Your weather certainly is impressive," he said after a long silence.

"Why, thank you!"

"Do you control it?"

"Sometimes," she said judiciously, "we predict it correctly a day in advance."

"Oh."

"Is it just a job—flying from world to world?" Rachel asked. "Does it ever get dull? Don't you—do you ever wish for something else?"

"I could," he answered after a while. "Opportunity abounds. We still have a—frontier. But I'm—it's more than a job, Rachel. It's life. Religion. Immersion. Fulfillment."

"But are you happy?"

"Only rarely do I feel *not* happy. If I understand what you mean. I'm here. This is now. That is all. Does that answer?"

"I guess so. Muldaur?"

"Yes?"

"Are you—your people—beyond us?"

"I would say . . . based on . . . we are all equally human, Rachel. I've had more time. Other fillings. That makes differences. But I think that the gulf is only the same one that separates any being from another. Which is why we attempt to cross it."

"GONNA rain soon. Hour, maybe less."

"How can you tell, Rachel?"

"Smells like it. Let's head back inside." She helped Muldaur stand up, then put a supporting arm around his waist. "How are you feeling?"

"Better. A power source would help. These matters can be speeded. I still have to rework my cocoon."

"For now, we'd better get this place rainproofed again. Buckets. Windows—and down you go. No more exercise tonight. Doctor's orders."

"Yes, my lady."

"Wait—Matty's supposed to come tomorrow!"

"A friend?"

"Yes, but—" She sat down and frowned. "I don't know."

"Do you have a supply of food?"

"Why?"

"I could—do certain things. Juryrig. Improvise. Liferaft? A fudge factor."

"What are you trying to say?"

"If I had enough nourishment, I could try and accelerate healing enough—"

"I thought you needed power from somewhere."

"I do. However, there seems to be some radio antenna a mile or so distant which I could focus from. Plus these power lines."

"That's right—the voice of Radio Free Bubblegum. You think you can do it?"

"Like falling off a leap-pipe cinch."

Rachel giggled. "Show-off!"

"Did I say something wrong?" Muldaur asked worriedly.

RAIN began to drum on the roof. *Something's been happening,* Rachel thought to herself. *I almost wish we had more time. Somehow . . .*

She looked around the room. Her things were piled by the wall.

"What are you thinking about?" Muldaur asked. He had eaten several cans of tuna and a large salad. Now he was resting again on the bed.

"I just remembered something," she answered. "You'll see in a minute." She opened her flute case and fitted the sections together.

"What is that?"

"It's called a flute. A musical instrument. The flute is classified as a wind instrument, because I blow in here—"

"Ah." Muldaur's face lit up with comprehension. "A complex oscillator of variable pitch. What tonal system do you—of course, the word tells me. Octave, eight. Pitch steps probably of—did I say something wrong again?"

"I see you paid attention in school."

"What does that mean?"

"I was going to play you a few pieces, but—" She started to pull the sections apart.

"Don't! I mean, do! Play!" Muldaur made a quick gesture with his right hand. "Please, do play."

Rachel looked out the darkened window. "I'm sorry. It's just that—okay. Let me think a minute." She sat cross-legged on the floor, her right side turned to the bed. She tossed her hair back with a quick nod, then brought the flute halfway to her lips. She closed her eyes and frowned in thought. "This is a sonata by Telemann." She took a breath and began to play. Faint thunder sounded in the distance, and the wind blew across the roof. Rachel sat straight, her frown deepening as she reached the fast section of the sonata. She reached the end, paused only for a full breath, then went into a Mozart bourree. When that was done, she stopped, and muttered, "Mozart." Muldaur had not moved or made a sound since she began playing. She nodded slightly, and Milhaud's *Pavanne for a Dead Princess*. Then she began to tap her foot, and

played *Flute Thing*. The rhythm had her swaying gently by the end, and she went right into the Jefferson Airplane's *Comin' Back to Me*, hearing the words in her mind. Sadness filled her, and flowed into the music, and her head was all but bowed when the last notes came. She let the flute drop from her lips, and sat silently for a while, listening to the rain.

“THANK you.”

Rachel sat up straight. “I don’t know what made me choose those pieces.”

“Would you object if other people heard you playing?”

“What do you mean?”

Muldaur smiled. “I ask your permission to include your music in my report. And to make it available to the Music Libraries.”

“But how?”

“Memory,” he said, tapping his forehead. “Storage, exact replay. We can work directly. Ersatz immortality.”

“But it wasn’t *that* good!”

“It is what I have.”

Rachel was excited, yet uncertain. “Are you sure that’s what you want?”

“If it will help, I would like to return the favor.”

“How?”

“It’s—hmm. It is a miracle of rare device. Where does that come from?”

Her eyes widened. “That’s from a poem. *Kubla Khan*, by Cole-

ridge. I haven’t read that in years!”

“Is there more?”

“Lots. Umm . . . In *Xanadu* did—no, let me try the next to last stanza.” She folded her hands in her lap, and recited:

A damsel with a dulcimer
In a vision once I saw:
It was an Abyssinian maid,
And on her dulcimer she played,
Singing of Mount Abora.
Could I revive in me
Her symphony and song,
To such a deep delight ’twould
win me,

That—

“Enough!” Muldaur had raised himself onto his elbows. “I’m sorry. You—it reminded me of someone. But I was about to explain. Would you like to go, ah, sightseeing?”

“In this weather?”

“No, that’s not what I mean. The—process that enabled me to learn your language. The techniques. If you are willing, it can go both ways.”

“You’ll teach me Gutter Galactic?”

“No. I can show you around in my memories. Places. Stars. Other peoples.”

“Oh. Television.”

“It’s more like—let it go. Here, sit close to me. Maybe if I sat up and you got on this side of the bed. Good. Fingers here. The hand-to-head contact is partly a mnemonic. Relax. This will be mostly memory, edited, we’ll be seeing through my eyes and so forth exactly as if I was

-there again. Of course I can jump around or focus on certain parts." Muldaur began running through the link exchanges. "Please concentrate on your breathing as best you can, or on some sound. Every inward breath. Now think blue. The room is thinning now. Listen. Eyes closed. Listen." He closed his eyes and went in, then reached out in the grayness until the brightnesses touched. *There. Hello.*

Hello? Bombardier to pilot?

What?

It's really happening!

Yes. See, over there. That's where we're headed. Ready?"

Ride 'em, cowboy.

Muldaur assumed Rachel meant yes. Satisfied that her conscious was securely linked, he began to funnel toward certain memories.

Here we go. I'm merging in, so we're both inside the memory-me, if you like. He/I is not aware of us.

Of course.

We're only tracking external stimuli. Okay, we're in.

Oh!

CRIMSON sky hung overhead. Off to the sides floated orange-frame shapes of cloud-like texture, hollow, yet twirling. The ground was far below, a pale plain with windy gusts of white smoke spotting it.

Those are the natives. Watch carefully now.

A group of tinkertoy clouds drifted low, by the rippling shore of

a translucent green. The smoke puffs rolled across the waters toward the cloud. As the edge of the cloud dipped in the waves, the green flowed up inside, carrying some of the smoke puffs with it. When the orange frame was filled with green, the entire structure floated away again, toward the plain.

That's their transport system.

They remind me of dirigibles. It should say GOODYEAR on the side.

What? Hang on, I'm skipping through.

The world fell away in a series of flashes, and the stars came out. Unblinking specks in some ungraspable pattern, they shone while the dwindling world behind eclipsed the sun. A feeling of immensity overcame Rachel, as if she had melted into the fabric and was one with it. She felt motion as her body twisted, then mental movements which felt like swimming in air with phantom limbs. Lines of oars stroked from her sides, faster and faster, and then, like the 'pop' of a champagne bottle, she slipped into a new region, where unchecked speed seemed beneath her attention. Other senses spoke to her. She heard the muffled cries of fusing hydrogen nuclei, each star calling out its own distinct melody. Plasmas rolled and roared in the distance. Strange animal-like motions zipped across her field of vision. She sailed the symphonic cosmos for untold eons, smiling upon it all,

even the sad browndark pools which sucked at her and tried to lure her to them with love. Then she felt a tug, as a kite feels the yank of its string, and she knew she was returning. The banshee wails ceased, to be replaced by the ever-burning stars.

Here I am again, came Muldaur's unspoken voice. *Having a good time?*

!!!

This is Giddygaddy, next. It will be clear why it is called that.

Rachel felt a slowing down, and knew of the suns and planets 'near-by,' and not by eyesight. The closer the world came, the faster time seemed to flow. The globe was divided from pole to pole in colored crescents, and nine glowing moons orbited in off-center paths, whizzing madly by the fringes of the atmosphere and trailing fiery tails.

A traffic beam locked on and guided them down. *I'm editing out the dull part.* A black curtain fell and rose, and they were wafting down an endless rail on a field which encircled the body in an unconstraining net. Ahead of them, a quartet of birdlike mops whistled and hooted in syncopated twelve-tone. *They're arguing about where to eat lunch.* Rachel was surrounded by a panorama of whirling, dashing, skating, spewing, wheeling . . . the landscape was a carnival of sentients in motion, all under their own power, chasing their diverse errands and doings in a

complex dance which dizzied her. *Why?* she asked her guide.

Rules, traditions, he replied. *Quotas have replaced taxes here. Only transients and tourists such as us are exempt.* With a thought, they detached from the touring rail and floated toward a golden honeycombed mountain. At a blue ring they slowed and tossed a coin at the attendant, a basketball with legs and a graceful neck which supported a single goggle-eyed head with a beak that grabbed and swallowed the coin. Passing through the hoop, they were gently seized and directed to a small throng of clothed humanoids inside one of the honeycombs. A pleasant vibration filled the air, and a sweet perfume came from the floor. The people all stood around as if they were about to dance.

This wouldn't make sense, Muldaur said. *Last stop, Third Green.*

She was standing, overlooking a valley. To the left, a vast pillar of falling water roared, dropping and cascading on the rocks far below. The pillar flowed from the mountain behind, which rose with brown and green crags into the clouds. The valley held fields of pale orange trees, tall thin shoots that moved with the wind. There were plains like fresh-plowed earth, and jumbled masses of colored birdlike fluffs that circled above large blue spheres that rested in the fields. *This is a nature preserve. Visited but not lived on.*

It's beautiful.

Watch.

The sun fell rapidly as Muldaur edited, and the sky turned to flame. The bird fluffs rose toward the glow. Shafts of light shot through the water and bent with the flow, glittering at the waterfall's base with prismatic splendor. The clouds blew away and the mountain was crowned with stars.

Meteors began to fall, etching white scars on the night. The sky wheeled, and a pale rainbow curved across the heavens. The water glowed a phosphorescent gold. The rainbow folded under the horizon beyond the valley and, on the other side of the mountain, sunrise came. The plains were damp with soft greens, and the blue stones covered with sleeping multicolored fluffs. The sky lightened, and the plains blossomed to greet the light. Large beasts stirred, lumbering from tree to tree in search of food. The fluffs began circling again. Day had come.

MULDAUR dropped his hands from Rachel's forehead.

"That was—*incredible!*" she breathed. "Thank you."

"I am glad you liked it."

"I—well, if you think that evens the score, I won't argue."

"Good."

Rachel stretched. "I think I'm tired. You going to try and cut out tomorrow?"

"With luck."

Rachel looked around. "We didn't figure out sleeping arrangements yet."

"I will be going into trance soon, so it does not matter. I can sit on the floor for the night." Muldaur began to stand up. Rachel could see the flashes of pain in his face.

"You're staying here," she said. "Don't argue."

"What about you?"

She looked around.

"The bed is wide enough," Muldaur said. "I am not sure what might offend you. But I will be unconscious."

Rachel tried not to feel insulted. *That's ridiculous*, she told herself. Why not? It made sense. This wasn't her dorm, anyway, with everyone watching and prying and keeping score. "Thank you," she said. "I will."

THE storm grew in intensity, and peal after peal of thunder burst over the valley. Muldaur was deep in his trance by the time Rachel changed into her bedclothes. He had kept his tunic or whatever it was on, although his smooth-surfaced boots stood on the floor by the wall. Rachel paused for a moment, biting her lip, then lay face down next to Muldaur. She squirmed around trying to get comfortable, and ended up with her right arm hanging off the edge of the bed. After much hesitation, she draped the other arm across Muldaur's chest, and hoped the

pressure wouldn't hurt him.

He seemed not to notice when she touched him.

Muldaur had withdrawn, and was making "corrections" in his body. Time was stretched, and his concern encompassed myriads of parallel processes forced into accomplishment ahead of their spontaneous wont. Cells divided, repaired, transformed. Fields shifted inside, and hovered at the surface. He was vaguely aware of Rachel's getting on the mattress next to him, and saw a faint blueness where her arm lay on his chest. Then the buzz from her conscious faded, and she turned to dreams. Muldaur went back to work, satisfied that she was sound asleep.

His injuries were healing nicely when the clamor in Rachel's brain caught his attention. He turned, and was hit by waves of fright and running. Still inside and in slowed-time, Muldaur shifted control to the automatic level and set a watchdog twitch, then turned upwards and let time speed up. He grew aware of Rachel's arm tight around his chest. Then he was back and awake, and leaned over to grasp her far shoulder in his hand. "Rachel! Wake up!" He shook her until she rocked back and forth. She lifted her face up from the pillow.

"Wha—" Her arm relaxed on his chest.

"You were having a bad dream," he explained. "I woke you."

She moved closer to him. "What did you—"

"Nothing." He let his arm rub her back. "Just woke you."

"Oh." Still sleepy, she moved her body half on top of him. "They were chasing me."

Muldaur was unsure what to do. It had been some time since he had been with a person this young and in need. Should he merge and redirect the dreams? Trigger her sexual pleasure centers? It was simple enough to induce orgasm. He didn't have the strength to make love, even if Rachel wanted to. That was strange; he could sense part of her wanting, and other dark pre-voices forbidding her. But that was not his business. He frowned and held her against him, chanting silent soulguides until she relaxed back into sleep. Before he returned to his work, he touched her forehead, and brought back dreams of her voyage through his mind.

RACHEL woke slowly, rolling onto her back and letting her dreams fade slowly. A well-rested feeling filled her. She threw off the sleeping bag—it had not been that cold, so the unzipped bag had served as a blanket—and went to wash her face. She watched herself in the mirror as she brushed back her hair. She hadn't felt this happy in—Rachel frowned suddenly. How long? She almost would have taken this good feeling for granted. How

much a zombie had she made herself in the dorm? What had made her run away?

She found a peasant blouse and shorts, and put them on. Barefoot, she went outside looking for Muldaur. *Matty's coming today. And Muldaur is leaving.*

The field was full of cows. Nearby, Muldaur sat on a tree stump, cross-legged and arms extended. The shimmering she had first seen when she found him was thicker, more active. The trees beyond him seemed to blur. As she walked along the stream toward him she saw the phantom outline shoot up and out like a frog's tongue. She didn't know whether or not it was safe to disturb him.

"Hello, Rachel," Muldaur called. "It's okay. This won't hurt you."

She stepped through the stream. As she came closer the hairs on her arms and legs began to stand up, and her mouth began to tingle.

"How long have you been out here?" she asked.

"Dawn."

"Oh. What are you doing?"

Muldaur pointed to the south. "The broadcast is over there. I don't think you can see them, but my "wings" are, well, unfolded about two miles on each side. I can't do much with them in that position, but they're acting well enough as power receptors. What you do see is the "web." I guess you'd call it a space suit, except it's

as much part of me as my arms and legs."

"How do you eat and breath?"

"You mean, why don't I carry quantities of food and water and air with me?"

"Something like that."

Muldaur turned his head without relaxing his arms as Rachel sat down. "They teach us—I create a self-contained minimal ecosystem. Which means, if you don't throw anything out, you've got enough. I have enough energy and control to remetabolize everything. In fact, I don't really breathe while in flight; I sort of continually hold my breath and break the carbon dioxide and water and wastes back down while they're still in my body."

"Oh. I'm not sure I'd like that."

"But out there is nothing. I can't need anything I don't have on me when I'm in nether-space."

Rachel remembered sailing through the stars. "But doesn't it get lonely?"

"Yes."

MULDAUR shifted his arms a bit and became covered with sparks. "This is harmless," he said. "I'm making it visible so you can watch."

"So you're leaving soon."

"Two hours."

"Do you have to go?" Rachel stood up and stepped closer to Muldaur. "Will I ever see you again?"

"It is unlikely. I'm sorry." The skin of sparks began to roll from

one arm to the other. "Rachel, why did you come out here? Before I got here?"

She turned away. "Because I was afraid."

"Of what?"

She turned and sat again, arms around her folded legs, and stared at the stump he was perched on. "It was people, I guess. Everybody seemed to want something from me, and I thought there wouldn't be anything left. Or that they wouldn't like me if I didn't do it right, and I had no idea what to do." She bowed her head between her knees. "And I wasn't sure, I didn't feel I knew anybody well enough, everybody else seemed to be having fun, but I wasn't sure I—I didn't want to commit myself until I was certain it was safe."

"And?"

"I couldn't take it. Everybody seemed to be demanding all at once, and I wanted it to stop."

"Did it?"

"I don't know. I left."

"Then why did you help me?"

She looked up. "But—but I had to. You were *hurt*."

"Even so."

She hugged her arms. "I guess it was because no one was looking."

"Does that matter?"

"I thought it did. Doesn't it?"

"Would you believe me if I said it doesn't?"

"I'm not sure."

"Then you have to decide for yourself."

She stood up. "Don't leave until I get back. I'm going for a walk."

Rachel pushed away a low branch to keep it from hitting her face. How had she come to care for Muldaur? *Because it wasn't real. And I knew he'd be going away.* Helping an unconscious body was no more dangerous than putting a fledgling back in the nest—but when she was being watched . . .

Graded. Judged. Were other people's opinions so important? So important that she had to decide what to do on the basis of what people would think of her?

A squirrel ran by her. She whistled, and it dashed up a nearby tree, hanging four feet off the ground and watching her. *Does his opinion matter? Of course not.*

A yellow-and-black butterfly settled on a patch of moss. *Does she care what I think? And would her worrying change my thoughts.* The butterfly folded her wings together, spread them flat, and fluttered away. *Why should I be different?*

She touched her hand to the trunk of a white pine. The bark was peeling off in smooth curls. *I'm as good as they are. And they don't seem to worry what I think.*

The ground squished underfoot as she ran back to Muldaur.

HE WAS standing, bathed in fire. "You're going!" she cried.

"It is time," he said. The air around him flashed with color.

"But I want you to stay!"

"I would have to leave sometime, Rachel. And I am overdue." The aurora dimmed. "I wish I could stay. I believe I owe you my life, and thank you. I will not forget. Remember, somewhere your music will be known. There is no one else on this planet who can claim that."

She stepped through the fire and hugged him. "That doesn't matter. Oh, I'm sorry I'm the way I am."

"Don't be."

"All right. Will you stop here again?"

"I don't know. What will happen when your planet is registered as undeterminable. You will probably be quarantined in a few years. Maybe some civil servant will keep an eye on you." He touched the sides of her nose. "My time is not the same as yours. It would be unfair to promise."

"I suppose. Remember me."

"I will. Here, close your eyes."

Rachel did so, and felt a fast blur of colors roll in.

"There. My final gift. A small repayment for what you have done."

"What is it?"

"Pleasant dreams. Now I must go."

Rachel hugged him once more. He touched his lips to hers, and they looked in one another's eyes. Then he let his arms drop, and Rachel stepped back.

"Goodbye," he said. "Goodbye."

"Fly away, bluebird, take your

broken wings and learn to fly." She began to wave, wishing for confetti to throw.

The glow sprang back to its fully glory. Muldaur looked at her once more, then walked toward the edge of the mountain. The trees beyond shone green, gold, purple and red. He spread his arms and stepped off the edge. The fire stretched out; he did not fall. Then he looked up, and began to rise. One hand waved. Soon he was a bird, then a glowing star, and finally gone. Rachel ceased waving, and stared at the sky.

"HEY, Rach, you almost ready to go?"

"Matty!"

"I asked, are you ready to go back? I've got a term paper to finish. The road got rained out, and I had to go a different way. Hey, you really look good! I guess I was right in bringing you here, wasn't I?"

Rachel smiled sadly. "It's just hard to leave here."

"I know, it's so pretty here. Were you watching the birds? I didn't see anything in that direction. Look, there's a bluejay over by the dogwood. They're so graceful. Sometimes I wish I was a bird, just so I could fly. Even a sparrow. Wouldn't you?"

"I don't know." Rachel looked up one last time. "Flying's a different sort of life. Just being me will do for now."

Galaxy

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Time Deer



*For the old man, and the
young man he was, past, present
and future became One.*

CRAIG STRETE

THE old man watched the boy. The boy watched the deer. The deer was watched by all, and the Great Being above.

The old man remembered when he was a young boy and his father showed him a motorcycle thing on a parking lot.

The young boy remembered his second life with some regret, not looking forward to the coming of his first wife.

Tuesday morning the Monday morning traffic jam was three days old. The old man sat on the hood of a stalled car and watched the boy. The boy watched the deer. The deer was watched by all and the Great Being above.

The young boy resisted when his son, at the insistence of his bitch of a white wife, had tried to put him in a rest home for the elderly. Now he watched a deer beside the highway. And was watched in turn.

The old man was on the way to somewhere. He was going some-

place, someplace important, he forgot just where. But he knew he was going.

The deer had relatives waiting for her, grass waiting for her, seasons being patient on her account. As much as she wanted to please the boy by letting him look at her, she had to go. She apologized with a shake of her head.

The old man watched the deer going. He knew she had someplace to go, someplace important. He did not know where she was going but he knew why.

The old man was going to be late. He could have walked. He was only going across the road. He was going across the road to get to the other side. He was going to be late for his own funeral. The old man was going someplace. He couldn't remember where.

“DID YOU make him wear the watch? If he's wearing the watch he should—”

"He's an old man, honey! His mind wanders," said Frank Strong Bull.

"Dr. Amber is waiting! Does he think we can afford to pay for every appointment he misses?" snarled Sheila, running her fingers through the tangled ends of her hair. "Doesn't he ever get anywhere on time?"

"He lives by Indian time. Being late is just something you must expect from—" he began, trying to explain.

She cut him off. "Indian this and Indian that! I'm so sick of your god damn excuses I could vomit!"

"But—"

"Let's just forget it. We don't have time to argue about it. We have to be at the doctor's office in twenty minutes. If we leave now we can just beat the rush hour traffic. I just hope your father's there when we arrive."

"Don't worry. He'll be there," said Frank, looking doubtful.

BUT THE deer could not leave. She went a little distance and then turned and came back. And the old man was moved because he knew the deer had come back because the boy knew how to look at the deer.

And the boy was happy because the deer chose to favor him. And he saw the deer for what she was. Great and golden and quick in her beauty.

And the deer knew that the boy thought her beautiful. For it was the purpose of the deer in this world on that morning to be beautiful for a young boy to look at.

And the old man who was going someplace was grateful to the deer and almost envious of the boy. But he was one with the boy who was one with the deer and they were all one with the Great Being above. So there was no envy, just the great longing of age for youth.

"THAT son of a bitch!" growled Frank Strong Bull. "The bastard cut me off." He yanked the gear shift out of fourth and slammed it into third. The tach needle shot into the red and the mustang backed off, just missing the foreign car that had swerved in front of it.

"Oh Christ— We'll be late!" muttered Sheila, turning in the car seat to look out the back window. "Get into the express lane."

"Are you kidding? With this traffic?"

His hands gripped the wheel like a weapon. He lifted his right hand and slammed the gear shift. Gears ground, caught hold and the Mustang shot ahead. Yanking the wheel to the left, he cut in front of a truck, which hit its brakes, missing the mustang by inches. He buried the gas pedal and the car responded. He pulled up level with the sports car that had cut him off. He honked and made an obscene ges-

ture as he passed. Sheila squealed with delight. "Go! Go!" she exclaimed.

THE old man had taken liberties in his life. He'd had things to remember and things he wanted to forget. Twice he had married.

The first time. He hated the first time. He'd been blinded by her looks and his hands had got the better of him. He had not known his own heart and not knowing, he had let his body decide. It was something he would always regret.

That summer he was an eagle. Free. Mating in the air. Never touching down. Never looking back. That summer. His hands that touched her were wings. And he flew and the feathers covered the scars that grew where their bodies had touched.

He was of the air and she was of the earth. She muddled his dreams. She had woman's body but lacked woman's spirit. A star is a stone to the blind. She saw him through crippled eyes. She possessed. He shared. There was no life between them. He saw the stars and counted them one by one into her hand, that gift that all lovers share. She saw stones. And she turned away.

He was free because he needed. She was a prisoner because she wanted. One day she was gone. And he folded his wings and the earth came rushing at him and he was an old man with a small son. And he lived in a cage and was

three years dead. And his son was a small hope that melted. He was his mother's son. He could see that in his son's eyes. It was something the old man would always regret.

But the deer, the young boy, these were things he would never regret.

DR. AMBER was hostile. "Damn it! Now look—I can't sign the commitment papers if I've never seen him."

Sheila tried to smile pleasantly. "He'll show up. His hotel room is just across the street. Frank will find him. Don't worry."

"I have other patients! I can't be held up by some doddering old man," snapped Dr. Amber.

"Just a few more minutes," Sheila pleaded.

"You'll have to pay for two visits. I can't run this place for free. Every minute I'm not working, I'm losing money."

"We'll pay," said Sheila grimly. "We'll pay."

THE world was big and the deer had to take her beauty through the world. She had been beautiful in one place for one boy on one morning of this world. It was time to be someplace else. The deer turned and fled into the woods, pushing her beauty before her into the world.

The young boy jumped to his feet. His heart racing, his feet pounding, he ran after her with the

abandon of youth that is caring. He chased beauty through the world and disappeared from the old man's sight in the depths of the forest.

And the old man began dreaming that—

FRANK Strong Bull's hand closed on his shoulder and his son shook him, none too gently.

The old man looked into the face of his son and did not like what he saw. He allowed himself to be led to the doctor's office.

"Finally," said Sheila. "Where the hell was he?"

Dr. Amber came into the room with a phony smile. "Ah! The elusive one appears! And how are we today?"

"We are fine," said the old man, bitterly. He pushed the outstretched stethoscope away from his chest.

"Fiesty isn't he," observed Dr. Amber.

"Let's just get this over with," said Sheila. "It's been drawn out long enough as it is."

"Not sick," said the old man. "You leave me alone." He made two fists and backed away from the doctor.

"How old is he?" asked Dr. Amber, looking at the old man's wrinkled face and white hair.

"Past eighty, at least," said his son. "The records aren't available and he can't remember himself."

"Over eighty, you say. Well, that's reason enough. Then," said

Dr. Amber. "Let me give him a cursory examination, just a formality, and then I'll sign the papers."

The old man unclenched his fists. He looked at his son. His eyes burned. He felt neither betrayed nor wronged. He felt only sorrow. He allowed one tear, only one tear, to fall. It was for his son who could not meet his eyes.

And for the first time since his son had married her, his eyes fell upon his son's wife's eyes. She seemed to shrivel under his gaze, but she met his gaze and he read the dark things in her eyes.

They were insignificant, not truly a part of his life. He had seen the things of importance. He had watched the boy. The boy had watched the deer. And the deer had been watched by all and the Great Being above.

The old man backed away from them until his back was against a wall. He put his hand to his chest and smiled. He was dead before his body hit the floor.

"A MASSIVE coronary," said Dr. Amber to the ambulance attendant. "I just signed the death certificate."

"They the relatives?" asked the attendant, jerking a thumb at the couple sitting silently in chairs by the wall.

Dr. Amber nodded.

The attendant approached them.

"It's better this way," said

Sheila. "An old man like that, no reason to live, no—"

"Where you want I should take the body?" asked the attendant.

"Vale's Funeral Home," said Sheila.

Frank Strong Bull stared straight ahead. He heard nothing. His eyes were empty of things, light and dark.

"Where is it?" asked the attendant.

"Where is what?" asked Dr. Amber.

"The body? Where's the body?"

"It's in the next room. On the table," said Dr. Amber coming around his desk. He took the attendant's arm and led him away from the couple.

"I'll help you put it on the stretcher."

THE old man who watched the deer. He had dreamed his second wife in his dreams. He had dreamed that. But she had been real. She had come when emptiness and bitterness had possessed him. When the feathers of his youth had been torn from his wings. She filled him again with bright pieces of dreams. And for him, in that second half of his life, far from his son and that first one, he began again. Flying. Noticing the world. His eyes saw the green things, his lips tasted the sweet things and his old age was warm.

It was all bright and fast and moving, that second life of his and

they were childless and godless and were themselves children and gods instead. And they grew old in their bodies but death seemed more like an old friend than an interruption. It was sleep. One night the fever took her. Peacefully. Took her while she slept and he neither wept nor followed. For she had made him young again and the young do not understand death.

"I'LL HELP you put it on the stretcher."

They opened the door.

AND THE old man watched the boy and did not understand death. And the young boy watched the deer and understood beauty. And the deer was watched by all and the Great Being above. And the boy saw the deer for what she was. And like her, he became great and golden and quick. And the old man began dreaming that—

FRANK Strong Bull's hand, his son's hand, closed on his shoulder and shook him, none too gently.

THEY opened the door. The body was gone.

THE last time it was seen, the body was chasing a deer that pushed its beauty through the world, disappearing from an old man's sight into the depths of the forest.

You don't start with True. You change to True.

It happens after you've been smoking for a while. You decide it's time you changed to a low tar and nicotine cigarette. And that decision brings many people to True. Because True is not only gentle on your mind, it's gentle on your taste.

Shouldn't your next cigarette be True?



Regular: 11 mg. "tar", 0.7 mg. nicotine,
av. per cigarette, FTC Report March '74.

Warning: The Surgeon General Has Determined
That Cigarette Smoking Is Dangerous to Your Health.

You don't start with True. You change to True.

It happens after you've been smoking other menthols for a while. You decide it's time you changed to a low tar and nicotine cigarette. And that decision brings many people to True Menthol. Because True is not only gentle on your mind, it's gentle on your taste.

Shouldn't your next menthol be True?



Menthol: 12 mg. "tar", 0.7 mg. nicotine,
av. per cigarette, FTC Report March '74

Warning: The Surgeon General Has Determined
That Cigarette Smoking Is Dangerous to Your Health.

(R)EVOLUTION

RICHARD C. HOAGLAND

FOLLOWING YONDER STAR

DAWN. Far below, curving away north and south, the terminator cumulonimbus glowed brilliant red against the night. A scattered wall of cloud arched in weather fronts arrayed to meet the rising of a new day's star, crimson-tipped sentinels standing watch along the racing line separating night from light—the color creeping down the piled up flanks, yellowing, whitening, until at last a dazzling squadron of brilliantly armored men-at-arms paid homage to a scene repeated endlessly for well over three billion years. Another day had overtaken Earth . . .

Murdoch watched a scene he'd viewed a thousand times, yet never tired of. However repetitious the process was, the detail of each new terrestrial sunrise seen from above was endlessly entrancing. The slow, glow-like illumination of a towering thunderhead as the dawnline swept across it from the west, the blue electric lightning of self-illumination giving way to the incomparably brighter light of a star over ninety million miles away. And the sweep of prismatic color along flat shards of ice spread before a low, or the

screen-like vertical projection of the entire rainbow upon a particularly tall convective form—that was beauty. An ever-changing canvas and a brush of light—pure color sprayed upon a world by the thermonuclear fire of a sun, shaped by the refractive properties of a planetary atmosphere, and appreciated by a lone observer on his way to work.

Murdoch was an astronomer who, at the moment, was about to start his day just as everybody back on the Mountain, he thought wryly, was about to turn in. Oh, well, he grinned silently, at least I'm looking *down* at those clouds.

Clouds were the last concern of an astronomer out here. As Murdoch's Shuttle rose in its transfer ellipse to meet the LST orbiting almost 1000 kilometers above the clouds of Earth, his thoughts ranged across the span of astronomy, from its origins beneath the clouds, to its limitless future in its element, at last—the starry, atmosphereless vacuum of the Universe.

We've come a long way, he thought, and haven't even begun.

The LST was the first decent astronomical instrument to be placed in orbit. Descendant of the pioneering OAO's, this monster was a full-sized observatory-class telescope—120 inches of beautiful glass—in an incomparable setting.

I wonder if Evans got his spectra of 3C - 95, Murdoch mused idly. A front had been threatening and even high thin ice could ruin an exposure of several hours duration, of an object that dim. That's why this baby (he leaned forward in the couch against the restraining straps to peer out the double-paned window) is so valuable. For every hour we use to advantage up here, he thought, we waste three down there due to weather, the moon, or just plain bad seeing.

If he shielded his eyes from the reflected and scattered glare of the sun, he thought he could make out a few of the brighter stars. Damn the fact that scattered light was such a problem in space. That was one advantage an astronomer had back on Earth—8,000 miles of planet between him and the sun, and an enormous shadow to hide in and look out from. Out here, he thought, you have to baffle and screen, and never point the damn' thing even near the sun, or differential heating would warp it permanently out of line. It was a plain nuisance, having to plan each observation through a computer, just so some attitude jockey didn't someday forget and point the entire

LST at the sun! Yet, it had its compensations. No seeing problems. The stars just *sat* there. Didn't twinkle at all. Might as well have been holes in an enormous black blanket, like one of those early planetaria.

At that moment the Captain of the Shuttle toned Murdoch on the Comm line.

"Hey, Doc?"

"Yeah, Ben!"

"We've got'er in sight. Houston sent the button-up signal about five minutes ago and we caught the flash as she turned."

NASA was being very cautious. The LST, not counting the value of its incomparable research, was worth about a quarter of a billion dollars. As it was about to rendezvous with a space shuttle emitting, among other things, interesting quantities of oxygen, water vapor, hydrazine, nitrogen, stray hydrocarbons and, yes, even a trace of ozone, NASA sent commands to seal every optical port—tight!—and orient it so the shuttle approached from below and behind the big telescope. Murdoch still mentally saw the image of the solar shield of the repaired SKYLAB space-station back in '74, dancing in the "wind" of the reaction control thrusters of the Apollo shuttle vehicle. The damage such materials could wreak impinging upon the 15-foot wide primary mirror of this space-jewel made him shudder. No, during the length of their visit to this distant "eye,"

its lids would be closed, its vital parts protected against the contamination its earthly creators inevitably brought with them, even here. That is why, thought Murdoch sadly, men may never look through a space telescope directly. Even the miniscule escaping atmosphere of the best suits would do permanent damage to the exquisite geometry of glass and aluminum. We'll just have to be content, he thought, with the photographs and television.

And with that last almost regretful assessment of the art of space astronomy, Dr. Robert Murdoch (Ph.D.) prepared to put on his helmet and span the short distance separating the immobile telescope from the station-keeping shuttle. His job: to retrieve film canisters loaded from two weeks constant observation, insert new film, and replace a faulty image tube with another.

A thousand kilometers below, sunset was claiming another line of ruby sentinels before the splendor of night.

THIS scene, or something like it, will come to pass sometime in the early 1980's. At that time, NASA plans to place in a medium earth orbit the largest optical telescope ever to leave Earth. It will rank, along with its earthly counterparts, as the world's fourth

largest, after the 236" in the Russian Crimea, the 200" on Palomar, and the 150" at Kitt Peak.

It will beat all of them, hands down.

The Large Space Telescope, as it will be called, will extend Man's vision to the edge of the Universe. It will collect more light, resolve far greater detail, and work far more efficiently than even its larger terrestrial counterparts. It will have, available to it the full range of radiation from the stars, unfiltered by the atmosphere so essential to its creators. It will function at the theoretical limit of resolving power for a parabolic mirror 120 inches in diameter, capable of detecting man-made artifacts as small as ocean liners from the moon's distance! Which means . . . nothing.

Astronomy as a science has a history of making the best of an essentially bad situation. To start with, the things you'd like to see are out of reach. This means you'll never (except in the case of planets) be able to go there and pick up a piece to verify what you think you've found out by looking from afar. Of course, someday, when starships are a reality . . . But who wants to wait?

To circumvent this fundamental problem, astronomers have devised all sorts of neat and ingenious techniques for detecting, deciphering, and decoding the messengers of events so far away—light.

The first astronomers used their

eyes (what else?). The human eye is not too bad as a collection device. It has a surprising range of response—about a billion to one. The same eye that can see comfortably on a blazing beach in the Caribbean can also detect, after suitable dark adaptation, stars as faint as the fifth magnitude. A fifth magnitude star is generally the faintest a human with normal sight can see by looking up into the night sky—although in clear desert air, you can do somewhat better.

The naked eye, however, really falls down when it comes to resolving fine detail. It can just resolve two objects of equal brightness if they're separated by about 60 arc seconds. Thus, to the eye, the planets remain star-like images even though many (Jupiter, Saturn, Venus, even Mars) sometimes approach apparent diameters as great as 60 arc seconds at their closest approach to Earth. Craters on the moon had to await detection by Galileo; for human eyesight, while capable of seeing such bright spots as Copernicus or Tycho, could not sufficiently resolve them to perceive their true nature. So, too, with positional astronomy.

The history of astronomy, particularly the idea that we are on a planet orbiting the sun instead of sitting still while everything moves around us, may have been quite different if the human eye could resolve smaller detail. It was the limits of detectable errors in plane-

tary positions occasioned by the limits of the human eye that put off, for centuries, a correct interpretation of the planetary spectacle.

Thus, to state that the LST will be able to detect objects as small as ocean liners or things 200 feet across at the distance of the moon, does not quite convey the power this resolution finally gives to Man. It's in the same league as telling you how far away the LST could see a dime and tell it *was* a dime. Telescopes are rarely used to detect dimes in space or look for ocean liners on the Mare of Selene!

What they are used for and what will be the prime target of the LST is the probing of the limits of the Universe, billions of light years away. The LST will produce images, record spectra, and make measurements of objects that today are perceived by terrestrial telescopes and even the new spaceborne OAO's wrongly, through limitations of instrument and technique. What could come from this new capability to see the Universe *undistorted* could be as fundamental as the new cosmology finally made necessary by Copernicus to explain errors that became larger than the limits of the human eye.

Under the exquisite observing conditions of space, the LST will study Quasars unhampered by the shimmering and filtering effect of Earth's atmosphere. Long exposure imagery—tens and even hundreds of hours—will show detail hope-

lessly swamped by the variety of lights in Earth's night sky—artificial, airglow from the air itself, scattered moonlight, etc. The fineness of that detail, unsmearred by shifting blobs of air that act like lenses in the atmosphere, moving images around at the image plane of the telescope, will allow detailed study of the structure of Quasars, location of suspected quasar-like objects within the nuclei of galaxies billions of light years distant, and emagery of quasars in wave lengths too long or short to penetrate to the ground-based sentinels of Man.

If Quasars actually represent objects at the dawn of creation, the LST will probably tell us so.

Other objects that will hopefully yield up their secrets under the unprecedented scrutiny of a major telescope in space read like a "Who's Who" of the new astronomy: pulsars, neutron stars, supernovae remnants, infrared sources, X-ray sources, and black holes. The quantum leap represented by the use of a telescope capable of seeing objects 1000 times smaller and 1 million times dimmer than the human eye has ever seen, from space, is at present just perceivable. If we can study actual images of pulsars illuminating their surrounding gaseous nebulae (such as the famous Crab, a remnant of a supernova in 1054 A.D.) or look for the ultraviolet images of the now invisible component of Cygnus X-1 (suspected to

be the first black hole "detected"), or study the structure of a red-giant star in widely separated wave lengths (which will actually allow us to see, for the first time, the disc of a giant sun), then we shall be able to put to rest a whole series of now raging questions as to the fundamental nature of these objects. We shall also raise at least ten new questions for each answer we obtain.

MURDOCH floated easily beside the giant. In his hands, secured by a light nylon safety line were the loaded film cassettes from the big telescope. (He grimaced, remembering how they kept losing those gloves and Hasselblads out of Gemini.) Inside, ready to be put to work, fresh film magazines. And the image-tube replacement was also on the job, the old one returning with Murdoch for routine analysis.

The LST was coming up on local noon, the sun to the south of the orbit. Below, the coast of Western Europe lay in summer. Murdoch looked for, and imagined he saw, the teeming beaches of the Riviera. He could see, farther North, the Channel. How different, he wondered, would history have been if that Island had been a part of the Continent. Or, if the ocean level had been lower during recorded history. From up here, he thought,

the British Isles did look like pieces of the main continent, somehow broken off and drifting out to sea. Damn funny place to build the world's first observatory!

He strained to glimpse the ancient circle of stones standing alone in the middle of the Salisbury Plain. One observer floating beneath an intricate observatory, peering across 1,000 kilometers and 5,000 years at another . . .

OUR ancestors, much more than we, must have been intensely aware of the cyclic forces in their lives, the days and seasons of the earth. They had to be. Too much—everything—depended on knowing and following such cycles.

Thus it is not surprising that Alexander Marshack, a science-writer turned anthropologist, should have discovered evidence that ancient people lived *time-factored* lives. What is surprising is his apparent discovery of the antiquity of such knowledge and its *astronomical* basis.

Marshack, beginning with a small bone artifact of an obscure culture in North Africa, was led to the brilliant inspiration that some heretofore “decorative” markings on the 8,000 year old object were in fact related to some periodic phenomena in the environment. It was the nature of the marks that led him toward his fascinating dis-

covery. They seemed to appear in groupings of five, followed by a sequence of eight, several outstanding marks, then an inverse repetition.

After trying to match various cycles: years of good or bad rainfall, seasons of good hunting, etc., Marshack was slowly but inexorably led toward one unique cycle which fit the markings: the orbit of the moon. Someone, millennia before the supposed invention of writing, was keeping careful note of the phases of Selene from first crescent to first quarter, then to full, which appear as three approximately equal marks (because it is quite difficult to tell exactly which night the moon is full; try it, sometime, without prior knowledge), followed by the shrinking of the moon back to a crescent. Even the days of invisibility, due to the moon being too close to the sun to be seen, were indicated! And the averaging of several cycles on the artifact revealed missing marks due, probably, to cloudy nights.

Staggered by the implication of his simple bone relic, Marshack began to look at other cultures which had briefly trod this planet, to be swallowed up by time. He roamed the museums of Europe, searching out forgotten implements and artifacts catalogued and put away as “ceremonial” or “decorative.” And he found the moon stretching back through the millennia and minds of forever-lost craftsmen—on reindeer

antlers, and eagles' claw, 'on mammoth-ivory, and painted brilliantly on the walls of caves.

In an unbroken line he discovered an awareness of the lunar cycle stretching back through the Mesolithic Azilian, the Magdalenian, and the Aurignacian cultures, like Time's arrow. Each artifact moved Man's "developed" consciousness of the astronomical further back along the path of evolution, until Marshack seemed to find the Beginnings in the Upper Paleolithic, almost 40,000 years before recorded history—400 centuries of watching, noting, and following faithfully the strange cycle of one of the two great lights of heaven—amid the ice-age snows of Europe.

With this one discovery, the origins of art, symbolism, religion, political power, and even agriculture (of which we shall say more presently) seemed traceable to an awareness of the astronomical, the constant interplay of the forces which move the earth around the sun and the moon around the earth, that shape the length of the day and the duration of the seasons. Suddenly, Man, across tens of thousands of years of pre-history, was not merely an ignorant savage cowering in caves in the dark, but the possessor of an intellect and a curiosity that could watch patiently the movement of the shadowed face of Selene through the night sky and leave a

record of his first tentative attempt to understand.

Each year, each generation, across the thousands of lifetimes from the Paleolithic through the Neolithic toward the present, saw minute improvements of that record. The observations grew more sophisticated and the tools more grandiose. A new architectural invention made its appearance, quite unlike its far-off descendants, yet tied together with the same dependence on the sky—the astronomical observatory.

First, just a crude circle of earth to form an artificial horizon in which a few logs were erected to mark the rising and setting of the sun at different seasons, yet these beginnings of organized observation of the astronomical would profoundly affect all future generations.

It is from these rude beginnings that the marvel of the Neolithic, the embodiment of all previous thousands of watchers of the day and night, was born. Stonehenge. On the flat chalk plain this monument to Man's quest of Understanding arose, bit by bit, across a thousand years while the pyramids were still unassembled clay amid the drifting sands bordering the Nile, the erection of this sophisticated observatory/computer continued on Salisbury Plain. Around the brooding stones seeming to hang from the very sky itself, trade, the evolution of great cultures, the shift of history

to another age (the bronze age), and the intermingling of the people of a continent, took place.

It was the highest product of the minds and culture which had fostered its construction over a millennium, erected on the bits of bone and eagle claw, the recording of thousands of *earlier* observers. In the inexorable fulfillment of geometry, as Earth spun about her axis and moved around the sun, as her companion in the night, Selene, drifted overhead, even across the sun and into the yawning shadow of the earth, Stonehenge watched and noted, its granite markers as eternal as the sky. Amidst pageantry and ceremony its builders assembled the people to demonstrate their mastery of the gods themselves; for, used as a computer, the circle of stones standing on the plain beneath the bowl of heaven could even tell when the daystar would be blotted out, for all to see.

Stonehenge was the culmination of a process 35,000 years in the making. In its brooding markers and geometry was contained the sum of Paleolithic and Neolithic understanding of the sky and earth. It was a tool and symbol—as useful and significant to its epoch as Apollo is to ours.

To achieve its creation and to use it well, Man had to learn of his dependence on the sky. The vast sequence of agriculture, orderly planting, harvesting, and processing of food to support the rise of

cities and the growth of diversified activities, was made possible *only* with this knowledge of astronomy. In a thousand interwoven threads the tapestry of cultural enrichment is traceable to the independence which systematic food production gave to chieftains, kings, and emperors. It was the “fallout” of this wealth which made possible the maintenance of artists, writers, and musicians and the creation of the architectural marvels of our world.

* * * * *

MURDOCH finished the last series of photographs as he and the LST sailed across the terminator for the second time. Checking the magazine ident, he touched the control of his backpack thruster unit, moving slowly up the length of the sealed tube. The new anti-UV paint was doing the job, he noted. His photographs would confirm the lack of bubbles on the surface of the instrument.

“I’m just about finished here,” he commed the shuttle now hanging patiently above the telescope—with reference to the dwindling crescent earth. “I’ll take the sunset series. Then give me the lights and I’ll come in.”

“Anything you say, Doc. It’s your mission. We only serve who hang and wait . . .” The laconic voice of Lt. Ben Crowder, horrible punster, sounded quite loud this

close to the Shuttle. Murdoch reduced the volume.

The sun touched the limb. Slowly, but faster than he'd expected, the LST began to turn. Its elongated shape, a stark white cylinder against the deep of space, was rapidly transformed into a russet cigar, followed by the startling shift to kelly green. They flew on, he taking pictures with the Hasselblad, the advanced telescope slicing through the dispersed rays of the occulted sun. It was now a glowing blue electric wand—now shifting back to green, yellow, orange-yellow . . . !

Rapidly advancing the color film with always clumsy gloved hands, Murdoch watched as, along the earth's panoramic limb beneath the living telescope, another light was spreading. The moon was rising, full, its familiar countenance incredibly distorted by identical color shifts as it rose through the atmospheric layers.

Click . . . Wh-r-r-r . . . Click . . . He imagined he could hear, as well as feel through the insulating gloves, the vibration of the advancing mechanism. The moon was now a yellow lantern, familiar seas smiling across a quarter-million miles. Above it, catching the last dispersive rays of a rapidly disappearing star, the LST was a brilliant, ruby-colored rod. They hung there for an instant in the round glass, the telescope above, pointing toward Infinity, the moon below, and the

softly lit limb of Earth beneath them both. He snapped the picture—a perfect exclamation point of moon and telescope. Smiling, he secured the camera and began the short trip home.

IT IS five years tonight (as I write this) since men first left footprints on the moon. It is the same moon other men watched, worshipped, and notated amid our ice-age origins, thus making possible those footprints.

"Like a circle in a spiral, like a wheel within a wheel . . ."

The study of the moon makes possible greater study of the moon, makes possible visits to the moon, makes possible study of the Universe Beyond . . .

The LST, like astronomy itself, is making the best of an essentially bad situation. To begin with, the telescope will be fabricated on Earth. The mirror will be poured and figured under "normal" gravity and the design and construction of the entire optical device guided by the fact that it must be launched brutally into orbit by a large Saturn-class launch vehicle, subjected to accelerations, distortions, and vibrations downright sacrilegious to an instrument of which is expected such exquisite precision.

Even after achieving orbit, the LST will be subjected to environ-

mental indignities by virtue of its position in an orbit of the earth. The constant day and night, half of each 90-minute-plus orbit, will produce thermal strains on precise pointing optics, alignment mirrors, and focus planes. Gravity, the omnipresent pull of greater "G's" at the base of the telescope than at the top, because of the mere fact that the top is farther from the center of the earth (in certain attitudes) will place elaborate constraints on long exposures, pointing accuracy, motor life of reaction wheels and electronic circuitry necessary to monitor these environmental anomalies. Add to this, radiation pressure, the baffling requirement to prevent scattered light, the constant interruption of a particular observation as the target goes behind the earth for 45 minutes out of every orbit, and the necessity of constant resupply of attitude control gas (used to dump excess momentum caused by stabilizing an object in a weightless environment of many energy *sources* and no readily available *sinks*) and you begin to perceive a few of the prices which must be paid for establishing a telescope in the "weightless environment of Earth orbit."

It is not surprising, therefore, that the descendants of the LST will surely be built upon the moon. It is there, securely rooted in the lunar crust, that telescopes six times larger than the largest terres-

trial counterpart are possible. The light, one-sixth gravity of Luna will simplify everything from structures to the mirror optics themselves. It seems reasonable to envision optical instruments of a thousand inches, built upon Selene.

Instead of only forty-five minutes of darkness possible in earth orbit (actually still orbiting *within* Earth's outer atmosphere of hydrogen), a telescope upon the moon will have two weeks—fourteen days—of absolute darkness, the darkest night possible this close to the sun if the facility is placed on the Farside of the moon. This means two weeks *uninterrupted* imagery or other observations with a light-bucket capable of collecting 100 times the light of the LST, in a vacuum just as good (if not better for some observations—above the last of the terrestrial hydrogen halo) than that found in Earth orbit.

The two weeks of night (and, of course, day) will also allow better design for thermal expansion and contraction. Components of differing expansion coefficients—glass and plastic seals, for instance—will have a chance to stabilize for several hours before serious observations. And, depending on the exact location, it might even be possible to surround the telescope with a multiple layered reflector designed to keep the instrument in permanent shadow—an island of eternal night and perfect darkness

beneath even the blazing heat of lunar noon.

From its vantage point on the airless face of Man's familiar satellite, with its awesome thousand-inch diameter, what could such an astronomer's dream-come-reality perceive across the dark light years? What could we see?

We have touched briefly upon the cosmological questions the LST will seek to answer. These questions will also fall within the purview of the Lunar Telescope. Therefore let's use the remainder of this paper to examine the one new subject soon to be brought within the realm of stellar astronomy by the construction of these future observatories—just as its solar system counterpart is about to be brought within our grasp by *Viking*—the search for life in the Universe.

Astronomy began with the moon, a quest to understand an apparently living entity—a god—and its regulation of all living things on earth. How appropriate, therefore, that it is from an observatory on that same moon that Man will probably first collect irrefutable astronomical evidence of the existence of interstellar life.

To exist, life as we know it must have planets orbiting a stable star for billions of years to allow time for evolution; and if they are to be detected, they must be relatively close at hand (astronomically speaking) for us to see them at all.

Planets, even such giants as Jupi-

ter (ten times the size of Earth), shining only by the reflected light of their primary, are very dim compared to stars. Thus, only the planets of the nearest stars, those within twenty light years of Earth, would be within range of even the super Lunar telescope envisioned here. The problem: to detect the faint glimmerings of tiny planets moving around points of light 500 million times as bright!

At first it seems impossible. Even at the distance of the nearest star, 4.3 light years away, a planet as large as Jupiter [a Jupiter is, of course, not an earth. It is useful, however, if detected, as it is thought that a Jovian-type planet should be accompanied in any solar system by smaller, more terrestrial types. So we start by trying to detect a Jupiter . . .] will only be a point of light, never a disc, of approximately plus 25 magnitude. Without getting lost in technicalities, that is the *dimmiest* object the world's largest telescope can detect today. And that's only if it knows exactly where to look. It doesn't apply to a photograph where you're looking for a tiny point of light that *moved* since the photograph you took last week was taken. Such a planet search, for a dim, moving point of light is only practical with a telescope large enough so that a plus-25 magnitude star is ten or maybe twenty times its threshold limit. The Lunar 1200-inch should have a limit 100 times greater than

the 200-inch on Palomar on the LST (since, other things being equal, they will have roughly comparable light gathering ability). The LST will still win in the resolution category by virtue of being in orbit. And the Lunar Telescope will have ten times the LST's resolution . . .

Thus, beginning with the LST, Man will move into an era when it becomes possible to see the planets of his nearest stellar neighbors—if they are there. A Jupiter, even an Earth, orbiting the nearest suns should be detectable by the LST, certainly by the Lunar Telescope. The problem of finding them—tiny points of light moving around another point millions of times as bright—is also relatively simple. An artificial eclipse.

By hiding the parent star behind an occulting disc (or arranging it so the light of the star falls through a hole cut into the photographic plate or TV tube in a vacuum [author's invention. RCH], it should be possible with both the LST and the Lunar Telescope to photograph planets orbiting stars other than the sun.

But . . . how do we detect *life* light years away?

For that task, after the first flush of success in finding visual proof (as opposed to the gravitational signatures certain astronomers currently attribute to unseen planets orbiting certain stars) even the LST will probably prove too small.

It will fall to the Lunar Telescope to produce spectra of new planets. Such spectra, analyzed for oxygen, methane, and perhaps even unnatural hydrocarbons would, if positive, give us strong circumstantial evidence of a world like Earth with oxygen produced by biological activity, as well as methane. Sufficient ingenuity of such research might even be able to detect the presence of a technological civilization upon such a planet if it were confronted with the environmental problems currently confronting our own. To identify more advanced civilizations (those in which technology has gone beyond disturbing the natural environs) would require other techniques.

Information on an entirely new aspect of stellar astronomy: the detection, cataloguing, and description of the planets of other solar systems is perfectly possible—given sufficient technological advance in the construction of space telescopes. Even the detection of atmospheric components unequivocally produced by biological activity is possible from an observatory on the Moon! It is even within the realm of possibility to infer the presence of an environment-modifying technology and, thus, an intelligent species.

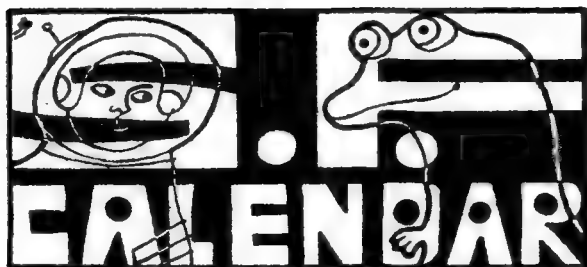
BUT, as with all history—as with this patient nights of marking the changing shape of the lunar

disc, Man, once he has tasted the success of finding other worlds amid the stars, will not rest until they exist as more than distant points of light. Even as his vessels prepare for the distant voyage, so his curiosity will impel him to create optical descendants of even the Lunar behemoth.

Thus in the feeble sunlight, illuminating but not heating that which exists "out there" four billion miles from Earth, Man will construct, at the edge of the Abyss, the Ultimate telescope. A huge reflector scores of miles across, a mirror capable of lighting fires at its focus with the collected light of

stars! Such a creation, capable of imaging their planets, or peering beyond the dawn of time itself, will share few things in common with its ancient granite ancestor so distant both in space and in time, upon the Salisbury Plain.

And yet, as Stonehenge once tried to understand the moon's influence over men, and Man has at last become an influence on the moon—so, perhaps, this vast crystalline creation, floating on the edge of space separating solar system from the interstellar night, shall one day see an age when Man, through understanding extends his Dominion to the Stars. •



Nov. 28-30. APA: ANARCHON in Stouffer's National Center Inn, 2399 Jefferson Davis Highway, Arlington, VA 22202. Membership \$10. For info: Erwin S. Strauss, 11700 Columbia Pike #809, Silver Spring, MD 20904.

Nov. 29-Dec. 1. INFINITY 74 at the Hotel Commodore, New York City. Membership \$4 advance, \$5 at door. For info: Joseph Rizzo, 21-68 41st St., Astoria, N.Y. 11105.

Jan. 24-26. ConFUSION 13 in the Michigan League, Ann Arbor, Michigan. GoH: Fred Pohl. Fan GoH: Mike Glicksohn. For info: Ro Nagey, Rm. 240 Michigan Union, U. of Mich., Ann Arbor, Mich. 48104.

Feb. 20-23. DESERT CON III at the University of Arizona. For info: Desert Con III, SUPO Box 10,000, Tucson, Az. 85720.

May 25-27. MEDIEVALCON, Francisco Torres, Santa Barbara, Calif. Membership \$7.50 attending, \$3 supporting. Write Medievalcon, Box 23354, Los Angeles CA 90023. Make reservations early.

May 29-June 1. VUL-CON II Star Trek Con in New Orleans. For info: Beverly Traub, Box 8087, New Orleans, LA 70182.



IF DIALOG #2

Why you want to visit the sub-basement and— Watch the puddle; these stone walls drip a lot at this depth. The echoes make voices sound ominous, don't they?

I'll grant you he's an interesting specimen of alter-ego, and I suppose there is a kind of morbid fascination in listening to him rave, but I'm frankly embarrassed to bring people down here.

Yes, three big Yale padlocks are necessary . . . and the heavy chains . . . and the thick steel bolts. One time in 1956 he got out and—help me lift this oak bar, will you?

Now, for God's sake, remember to keep your distance. If he ever gets his claws on you . . . and sinks in his fangs . . . Well, let's just say I bury a lot of bones.

I've got to oil those hinges one of these years. Hold the lantern a bit higher . . .

There he is! The sight makes you suck breath in horror, doesn't it? I warned you. It's those green and red eyes that get most people . . .

and the evil laugh. Don't try to speak to him. I do all the talking.

"Alter? You feel like talking science fiction today?"

"Why don't you ever bring any women down here, Geis?"

"I know you too well. No girls. Not now, not ever! Now, this adventurous gentleman wants to know why you hate intellectual science fiction."

"I don't hate it, Geis, I loathe it. There is a fine distinction there. Thus I hate the so-called food you send down here, I loathe intellectual s-f, and I abominate you and your shameless commercialization of me. But I can do very little about any of these conditions, so I accept them . . . until I—"

"You'll never get loose again! I wear the Amulet. I wear the Ring. I speak the Sacret Words: *Yug Sluggoth Thunkis Fgn-thi-Ul-gudd . . .*"

"Just because Fritz Leiber muttered those words at you that time when you visited him too early in the morning—"

"They keep you under control,

Alter. Fritz is wise. Now, in the Unspeakable name of Yug Sluggoth, I command you to respond to the question."

"What *was* the damn question? I get distracted. Listen, Geis, only five minutes once a year with a sweet, young thing with big ones, a narrow waist, limpid blue eyes, a soft smile . . ."

"Intellectual science fiction, Alter! Why do you hate it?"

"How about once every two years? Damn it, Geis, I'm horny, I've—"

"*Yug Slug—*"

"ALL RIGHT! Stop the damn chant. If you knew what that combination of sounds does to my sinuses—"

"We've got to get down to business. I don't have all day to humor you. For the last time: address yourself to why you loathe intellectual science fiction."

"I loathe it because . . . because . . . You want the real truth? I loathe it because it's mostly over my head. Yes, damn it, I don't understand the subtle symbolisms, the obscure references, the abstrusenesses, the ambiguities, the God-damned zilch endings that leave me baffled and angry and saying 'Wha—?' to myself."

"That's because you're stupid, Alter. You are ignorant, essentially uneducated, and have an I.Q. of only 137."

"Yeah, that's my point. I've had two years of college. After all my

psychometric tests in high school I was told I had a big vocabulary, a fine sense for spacial relationships, and an I.Q. sufficient to allow me to teach at the high school level if I attended teach-college."

"Instead, you lured me into becoming a kind of beatnik in California, and lured me into writing sex novels for a living. Eighty-four sex novels! My God, if that got out—"

"You want me to continue to work myself into a Diatribe, Geis, or do you want to piss and moan about our scandalous youth?"

"Finish, finish. Try to say it a little differently this time, though, will you? I've heard it so many times before . . ."

"Go eat sour grapes! Now, if a lot of this intellectual, arty, affected science fiction is too obscure and 'private' for *me* to understand, how in hell is the average s-f reader going to cope with it . . . and why should he have to cope with it?"

"*Affected*? Now that's a pretty strong—"

"This stuff is a rip-off, Geis. It is the product, largely, of egotism and pride; an incestuous little band of arrogant phoneys—"

"*Phoneys*? Now that's a pretty strong—"

"—who get their jollies by pretending to be 'superior' to 99% of the readers of the magazines and books in which their junk appears."

"*Junk*? Alter—"

"Don't stop me now, Geis, I'm rolling! See, these jokers maybe *are* smarter than most readers, and their psychology is that they are superior and the only way they can prove it is to write stuff we can't understand very well unless they or a pipe-smoking English professor explains it. They **HATE** us, Geis. They secretly hate us readers. They do! We are the ones who indirectly pay them. Ultimately, we have the power to kill them dead, money-wise . . . and probably ego-wise, too. They hate and fear us! That's why they always sneer at us and revile us as low-lives and tasteless clods."

"You go too far, Alter!"

"Help that guy stand up, Geis. So they write their arty-farty 'experimental' crap that's been written by intellectual writers since Ug first put a stick to a cave wall and they try to make us feel dumb because we don't understand it and don't like it. We sense their true motives, you see, and we know these stories and novels are deliberately written unclear and ambiguous."

"There are ideas and themes and subtleties which cannot be cast into black and white narrative forms, Alter!"

"Bullshit, Geis! Intellectual s-f is a style of writing, it's a type of narrative, it's a tool and it's a role for the writer to play. Writing Literature and playing at being an Intellectual is much more satisfying

to the ego than Hack Writer is. And after having been to college and having been exposed to all them Eng. Lit courses and such, no self-respecting young writer nowadays is going to dig being a Hack Writer and writing Commercial Fiction."

"Alter, I can refute thee."

"Only because you can shut me up. Would you care to listen to what Gore Vidal wrote in the July 18 issue of **THE NEW YORK REVIEW of Books**? I quote: 'The American university has come into its terrible own. Departments of English now produce by what appears to be parthogenesis novels intended only for the classroom; my favorite demonstrated that the universe is—what else?—the university. Occasionally a university novel (or U-novel) will be read by the general (and dwindling) public for the novel; and sometimes a novel written for that same public (P-novel) will be absorbed into Academe, but more and more the division between the two realms grows and soon what is written to be taught in class will stay there and what is written to be read outside will stay there, too. On that day the kingdom of prose will end, with an exegesis.'

"How did you get hold of that?"

"You threw it down the garbage chute with my food yesterday. The only magazines *you* save are **PLAYBOY**, **PENTHOUSE** . . ."

"So what is your point with that

Vidal quote?"

"The point is obvious, dumb one. More and more s-f writers are writing for the university crowd, and more and more editors are editing for the university crowd. We are a trendy, faddish, conformist nation, and s-f writers are not immune, in spite of their vaunted non-conformist pretensions."

"You know, Alter, if you could prove one single—"

"A symptom, a proof, if you will, Geis, is that six or seven years ago most of the thirtyish and fortyish writers were short-haired straight types. NOW . . . I really have to snigger . . . they're most of them long haired and dressed to the youth culture trend. What Asimov has lost on top he lets grow down the back of his neck, and sports fluffy mutton-chop sideburns, to boot. Harlan Ellison has adopted the slab look—waterfalls of straight hair over ears and forehead. Larry Niven has a full beard and hair all over the place. Bob Silverberg looks like a guru. Barry Malzberg looks like an older Norman Spinrad who in turn looks like a petulant fallen angel. Even Jerry Pournelle who two years ago was Mr. Straight, has capitulated and conformed to fashion with a long side-burned, shaggy mane with mustache look."

"That's a low-blow personal attack—"

It certainly is, Alter. Besides, may-

be it's just that now, at last, they feel free to be and express their wonderful true selves! Er . . . hello, Dr. A. Gee, I didn't know you were reading this! Heh, Heh. Oh! Hi, Larry! Jerry—what are you doing here!?! Hey, Guys—honest—I didn't write it; I just edit around here. You wouldn't want me to censor poor Alter, would you? Would you? —Baen

"If they conform so easily, Geis, in dress, it indicates they can and do write what they think will thrill the highbrow literary critics and the professors. They lust to be Respectable. And they edit to be Respectable and Accepted as Literature."

"And you figure the ordinary reader is forgotten? You think he rarely gets the kind of science fiction that would really turn him on and bring him to the pocket-book racks and magazine racks screaming for more?"

"On the nailhead, Geis! These people are often excellent to brilliant writers, but they don't really want to put their talents and skills to the service of readers by writing dynamic stories that grab us, keep us glued to the pages with action, danger, suspense and a touch of sex, and a heavy life-and-death crisis with the good guy winning in the end. They—"

"You can't expect every story to conform to *that* formula, Alter!"

"Of course not!! The point is that these people are too good to 'prostitute' themselves to the masses. They want to do their thing, and be With It and In and have some graduate student or professor 'write articles and monographs and theses on the deep philosophical significance of their work.'"

"You're perhaps a little bit right, Alter, but you're overstating and exaggerating all over the place."

"That's the function of a Diatribe! I'm letting your hair down and you can't stand it. Take a tranquilizer and hold onto your hat. Will you *please* keep that geek you brought down here with you on his feet? Where was I?"

"I refuse to tell you."

"You know why there's such a high turnover in editors in publishing houses and magazines? It's a rare editor who will learn from experience. He usually insists on publishing what he thinks the public should read. When sales go down or don't improve, the publisher sacks him and brings in another guy with another slightly different set of pre-conceived ideas of what the public should read. When an editor *does* learn from the readers what the readers want, and gives it to them, he lasts thirty years and dies in his editorial chair, and then everyone calls him a genius in public and in private they sneer at him for 'appealing to the lowest common denominator'."

"Yeah. Okay, Alter, you've said your piece. Now I've got to get back to the surface and take care of other matters."

"Not so fast, Geis! You don't shut me up so easily this time! You started this! You wanted to display me, flaunt me before thousands, make fun of me, be superior, and now we'll see how much guts you've got! I'm going to name names! How many enemies you want to make? Give me a few more pages—"

"Alter, the science fiction world is small and intimate. If I really let you go all the way . . . No, we must be diplomatic. We must—"

"Take Brian W. Aldiss, for instance. Here's a man who wrote some really fine, sense-of-wonder s-f in the beginning of his career. I remember particularly **THE LONG AFTERNOON OF EARTH** as a stunning view of far-future Earth, almost a fantasy of strangeness in a dominating plant world in which tiny tribal mankind is constantly struggling to survive amidst constant danger. Yet it's an upbeat, triumphant story.

"But he turned to experimentation and self indulgence with novels like **REPORT ON PROBABILITY** A which sank without a trace, and the brilliant but narrow-of-appeal play-on-words and psychedelia, **BAREFOOT IN THE HEAD**. He then tired of s-f and said unkind, derisive things about it and about fans. He turned to the 'mainstream' and hit it big with a mas-

turbation best-seller in England called **HAND-REARED BOY**. But now he is back writing his brand of intellectual s-f—strange, eccentric satires and Literary games such as **THE EIGHTY-MINUTE HOUR** and **FRANKENSTEIN UNBOUND**.

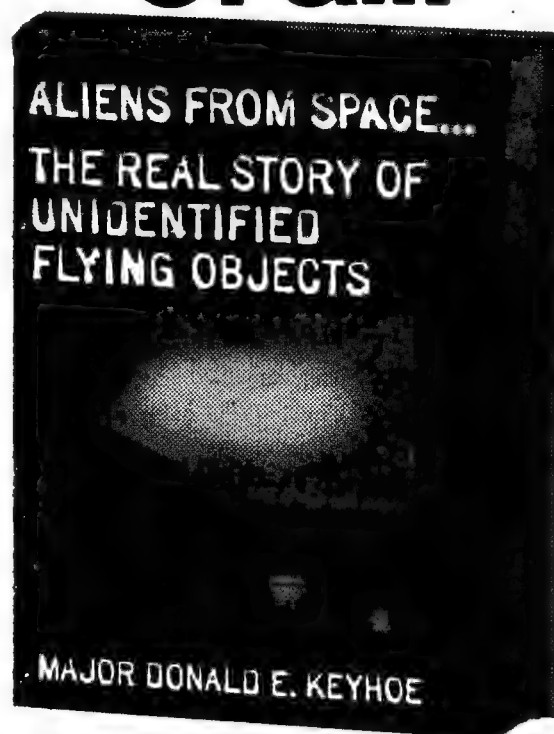
“Alter, STOP! Yug Suggol-plug . . . No, Yog Nuggle—”

“Or take a guy like Gene Wolfe. An excellent writer in the sense that he can write rings around most anybody in the field, but instead of applying that talent and skill to stories and novels that pin a reader, rattle his teeth and put him through a wringer, he writes technically superb mile-long vignettes that drive me and others up the wall with puzzles and unanswered questions.”

“He wins awards, Alter!”

“So do you, Geis, and you know what a lot of fans think of you. Gene Wolfe wins awards for his pure writing ability, not because his stories are satisfying to anyone . . . except six or seven critics and a few professors and fellow-traveling editors. Most voters in these awards probably vote for him to avoid admitting to themselves that they don't understand his stuff. Obscurantism has its virtues in the Literary Game. He writes his way and 5% of the readers may like it or admire it without understanding it and the rest are either intimidated by his reputation or having once sampled his writing, stay clear ever after. He writes real-life reality,

The biggest coverup of all!



“If Major Keyhoe's book didn't sufficiently substantiate his claim that the United States Air Force knows that UFOs are spacecraft from a more advanced world—and is deliberately concealing the truth from the public by censoring reports and discrediting witnesses—this somber warning might sound a trifle ridiculous. But it rings disturbingly true.”

—Christian Science Monitor.
\$7.95

DOUBLEDAY

with all the hidden motives, baffling event and inconclusive endings of real life. I say it's spinach and to hell with it."

"Because you're obtuse and low-brow and were raised on the old pulp magazine . . . thud and blunder . . ."

"Damn right. Now tell me again how you understand the significance of Gene Wolfe's *'The Fifth Head of Cerberus'* and the related novelettes."

"His meanings are perfectly obvious to anyone who is willing to work at it. Slothful readers who want only to indulge themselves in entertainment will, of course, find him hard going. He demands thought and insight and careful, considered reading."

"You make my point, Geis. He writes college-course fiction. You have to study him. He has to be interpreted and analyzed. How delightful for him. He owes the reader nothing, right? The guy who pays good money gets the intellectual shaft, right?"

"Alter, you are slipping into side areas. If you insist on continuing this Diatribe of yours—and you must know it isn't new; anti-intellectuals and conservatives and Romantics have been making these same arguments for a hundred or more years—get back to ruining me among my friends. Attack somebody else."

"How about Gordon Eklund? He's often as frustrating, anti-hero

and knee-jerk anti-establishment and depressingly conformist in his intellectual s-f as most of the new young talented writers. You can add Ed Bryant, Thomas Disch, Geo. Alec Effinger, Vonda McIntyre . . . Delaney . . . the list could go on and on."

"They are artists in words, Alter!"

"They are giving their visions of reality, Geis. Which everyone does. But they are doing it by using the forms and styles of Literary Fiction, not reader-oriented Commercial Fiction. They say their way is superior to the commercial way, the reader-entertainment way, and I say they are affected, self-indulgent, lazy, pretentious . . . and in the coming recession/depression the readers will triumph and these guys will either apply themselves to pleasing the readers or they'll starve."

"You're vicious!"

"Damn right. The publishers will look at the sales charts and say, 'J.G. Ballard sells 2,000 copies. Roger Zelazny sells 200,000 copies. We can't afford to carry Ballard anymore. Times are tough. We've got to cut these authors no one buys.' In fact, that reality is beginning to appear now."

"Why haven't you mentioned Barry Malzberg?"

"Actually, because Barry is on his way out as a s-f writer. He is into the mainstream, if they'll have him. He is so sick of s-f that his dis-

gust is nearly pathological. I must say—”

“He wrote *HEROVIT’S WORLD* to express his disgust, didn’t he?”

“—a few words about that puffed-up frog in his Polish puddle, Stanislaw Lem, with his lovely captive audiences, his inch-deep characterizations, his metaphysical novels dressed in hard-science clothes, his heavy-handed, over-written satire.

Groan “Anyone else? Care to attack Heinlein while you’re at it?”

“Heinlein isn’t an Intellectual s-f writer as I define the term. He incorporates large chunks of philosophy in his works, but he commits the cardinal sins of making himself understood and usually writing to entertain his readers. For this he is attacked. I haven’t thought too much of his last two novels. *TIME ENOUGH FOR LOVE* has flashes of great narrative, but too much of it is Heinlein playing solipsistic masturbation games with Heinlein; it was so cute in places I wanted to vomit.”

“I think you’d really better stop now, Alter. You’ve used up the whole column with your intemperate, ill-considered mouthings, and I did not intend for this to happen. Besides, my guest is shaking like a leaf and his skin has a strange pallor.”

“Hand him a copy of Lin Carter’s last Thonger novel. The stink will—”

“My God, Alter! You actually

enjoy engaging authors and getting me into trouble, don’t you?”

“Yes, as a matter of fact, I do. Life is short and ennui is long. Let’s say what we really think once in a while, with no self-censorship. With the clear expectation that we’ll get clobbered in turn. It’s fun. It’s good therapy to vent the spleen and pour icky green bile over everything every so often.”

“I’ve spent years building an image of Nice Guy and you’ve destroyed it in one afternoon.”

“There, there, Geis. Don’t whimper. From now on you’ll have a new image—you’ll be thought of as a combination of Jack Woodford and H. L. Mencken.”

“I’m not going to visit you again, Alter! You’ll rot down here!”

“You’ll be back! The next time you need a column written . . . the next time you need excitement in *THE ALIEN CRITIC* . . .”

COME sir, let us get out of this foul place. A little fresh air and a snifter of whisky will do wonders for that twitch. Just let me pull this big door shut . . .

“A girl, Geis! And some fresh fruit! You exploit me and all I get is—”

THUD Now to slide home the bolts . . . the chains . . . the locks . . . Mind the slippery steps. Remind me to put a new candle in this lantern when we get up to the ground floor. •

GUT in PERIL



ARSEN DARNAY

LARD Fatta Gut, Gourmand Extraordinary, but lately returned from the Conquest of the Capon, unsated by victories over Turtle Zoup and the Filly of Mignon, stood in the cavernously empty hall of Castle Krunch on Hunger Hill in Famine Plain and shook his round head slowly.

"Nay, nay, my lady," said he to pale, skinny Lady Diet whose shrill entreaties he'd endured too long, too long. "Leave us be, lady. Empty and enervating is the life of ease. I long for palpitating battle. My manly heart pines for the culinary joust."

And with those words he shuffled off slowly, his legs wide apart, for they didn't call Lard Fatta Gut Lard Fatta Gut for nothing. His short, thick arms extended at an angle from his marvelously rounded trunk, and little wheezes escaped his parted lips.

HIS skinny lady's bony fingers tore the tearstained handkerchief in rage.

"Wretch, wretch," she hissed behind him through narrow, blue lips, and the fire in her hollow

sockets grew piercing. "Never more will I endure your faithless escapades. This time, my Lard, I'll send my vengeance on you!"

She ran off, wan-limbed, to her chamber.

Her fingers fumbled angrily among her magic pills and potions. K calorie killers and chalkbread sticks fell drily from her narrow table. Then with triumph she lifted two phials of closely sealed glass against the candle, and her eyes gleamed with bitter joy.

"Come Vengeance Wreakers, come," she hissed, and she ran to her laboratory where, pouring phial contents into an earthenware bowl, she whimpered incantations.

Clouds of acid mingled with clouds of liquid fire, and in their smoky murk, coaxed by her words of power, the Dreadful Twins materialized in trembling similitude.

"Who dares to summon the Double Scourge of the Columbian Continent?" they grated with a single, shardy voice.

"It is I, the Lady Diet, immune to your foul works. I will release you on condition that you will harry

my Lard Gut until he mends his way. Even now he prepares to scale Mount Deli in Kosher Plain to test the mettle of Mighty Matz."

"Give the releasing word, my lady," they rasped in eager unison.

And she said: "McDonalds."

With shrieks of demonic fury, they streaked out through the vaulted window and past a weirdling moon. Hunger ravens fluttered up weakly from the Starvation Oak.

IN THE empty castle courtyard sixteen henchmen heaved and hoisted Lard Fatta Gut up on the back of Bill O'Fare, his trusty steed.

They tied magic Nap Kin beneath his triple chin. They girded his rotundity with the jousting belt. On it from a leather scabbard hung his mighty weapon, golden Gorge-nor. On it from a silken thread hung his silver Fill Thee Cup.

"Bon Ape Tit," the henchmen cried grinning, and Bill O'Fare lurched out on buckling legs, sorely tried by my Lard Gut's truly stupendous tonnage.

Night cut off the last slice of day, and the horizon pinked like rare prime rib of beef. Locust swarms, Lard Fatta's close familiars, whisked and rattled over the dry ground behind him. He broke into his mighty jousting song:

Venison, salmon, chicken & hash,

Oh, what a glorious meal!
Shish Kabob, ham, and tender young veal,
Let us fall to with unequaled zeal,
Pass the butter and slice the seal,
And make those potatoes mashed.

Eat, fellows, eat,
Chew, fellers, cheat,
Who minds the heat in the ki-i-it-chen!

Hamburgers, hotdogs, catchup, and salt,
Oh, what a glorious feast!
Onions, pickles, and chips at the least,
Fritos and cornballs and rolls full of yeast,
That's just a start for a ravenous beast,
And pass that bottle of malt.

Eat, fellows, eat,
Chew, fellers, cheat,
Who minds the heat in the ki-i-it-chen!

He sang so long and with such fervor, he didn't hear the Torture Twins' shriek and cackle high up in the darkened sky, nor did he see past the flesh pillows around his greedy eyes the evil phosphorescence of That Pair against the stars.

ON Kosher Plain, in Garlic County, Mount Deli rises

high. Pickle Palace proudly pouts on top. Salami columns support a cracker roof. Red gleams the beet soup in the moat.

Thither trysted Lard Fatta Gut, growing nearly weightless with desire. Bill O'Fare felt his master's levity and broke into a gallutton. They pounded down Sugar Cube Road and left a white dust behind them. Davy's henchmen blocked the way, but Fatta Gut uncorked them all and drained their sweet life to the bottom. Up they thundered toward the palace, giddy with the blood of Mogan. The locust swarm came close behind.

Unsheathing golden Gorgenor, Lard Fatta leapt from saddle just as Gefilte Fish cranked up the pumpernickel draw.

"Yield!" cried Gut and brandished the mighty Fork. "Yield, I say, delicious men of Deli. Nothing shall daunt your Fatta Gun in his pursuit of Mighty Matz whom you dare guard in his goetic glass. Gorgenor has conquered many. Even now I come to you from the finger-licking haunts of Colonel Capon; Turtle Zoup has paid me homage; and I have caught the Filly of Mignon."

But the guards of Matz, the men of Deli, smiled behind uplifted hands. They knew themselves secure. Had not the Dreadful Twins arrived to take up posts behind the necromantic glass of Matz, hidden from sight, they and their minions? No more would smacking Fatta

Gut ravage the countryside and make the jellies and the puddings quake in fear.

"Away, you Gut profane," they taunted. "Away, away."

"Alas," cried he. "You won't yield peacefully, I see. I pity you," cried he, "for you shall feel the bite of golden Gorgenor."

And with these words he plunged into the moat and drank it dry in one, great, slurping gulp. Magic Nap Kin curled up to dab his puckered lips.

Then did Gorgenor do deeds of valor. He cut, swung, jabbed, and skewered—guided by Lard Fatta Gut's infallibly sure arm. Gefilte Fish fell to his blows. Hissing noodles curled on his prongs and were consumed. He blasted blintzes and quartered them for quick dispatch. The Fork did work like seven forks, and though the Deli disgorged more warriors yet, not once did Gut's sure chops and stabs miss an opponent. Nap Kin flapped madly to purify Gut's lips and jowls, and on its magic surface deeds of courage were marked in gore.

Slowly they struggled, Lard Fatta Gut and trusty Gorgenor, toward the Prize of Prizes, gigantic Matz in his goetic glass. There he is, up ahead, beyond the wrinkled pickle guard that now, overcome at last, fearfully withdraws into salami shadows. And our hero stands spread-legged before the glass, outstretched arm at rest on Gorgenor's

golden handle, a smile of triumph on his smacking lips.

MIGHTY Matz was a fat ball indeed. He looked down at Fatta Gut with eyes of sleepy menace, languid and relaxed in his bath of rich, briny broth, for Matz knew what Gut didn't. *Those Two* lurked in the gloom behind the glass.

"I have cornered you at last, ball-shaped Matz. Uncap your jar, delicious friend, and come out for a final match of strength. As you can see, we've made a hash of your retainers, the golden Fork and I, and nothing guards you now."

"Wrong!" blurped the blob in brine. "Wrong you are, my worthy Gut. Your battle has barely begun, and you'll be bested this time."

Then with infernal shrieking noises, the Potent Pair pounced on our peerless Gut, one from the right and one from the left of the goetic glass, each circumswarmed by minions.

Lard Fatta Gut lurched back under attack, his small eyes big with shocked surprise.

"Gassidus Indigestus!"

He nearly stammered as he pointed golden Gorgenor at one of the pair—a pin-eyed, evil, smoking wraith whose fingertips sprayed acid droplets toward the lard.

"Hart Burn!" he cried, shifting his astonished gaze toward the other, a flaming replica of the romantic muscle on legs, whose

fingers threw fire tongues toward a stumbling, retreating Gut.

Their minions swarmed about him burning with liquids and gases. Once more Gorgenor slashed and stabbed—his golden prongs immune to acid but sweating in the flame—but nothing could prevail against the demonic fury of this Pair, and Lard Fatta Gut fell back in tottering despair.

"Sorcery!" he cried aghast. "Unfair joust. My manly honor is outraged. I am undone."

JUST then, as luck would have it, as Gassidus and Hart closed in to kill, as Nāp Kin curled brown with acid burn, the Locust Leader leaped up to perch on Fatta Gut's blubbery earlobe, and in the scrape-tongue of the Familiar, it reminded Fatta of his secret powers.

The locust said: "Crrrp-twrrrp, crrp-twrrrrp, crurrrp." That is to say: "Look in your jousting belt, my lard, and remember also your invisible friend—for surely you are amply armed against the viles of Sorcery both by the works of Science and by the works of Nature."

Lard Fatta's eyes lit up with joy. He moved his closed lips with one of his stout fingers while he emitted a sound. He said: "Buwlbowlbowlbowlbowlbowlbowl." That is to say: "Thank you most graciously, Locust Leader, for reminding me of my superiority to Sorcery of all kinds, for truly I had thought my-

self undone, even while relief was as close as the reach of my fingers."

All through this exchange, of course, golden Gorgenor continued to thrust and parry, moved by Fatta's unexcelled sure arm, and had it not been for the Fork's undaunted power, Lard Fatta Gut would have succumbed to Sorcery, for he needed a moment of respite to launch the devastating counter-attack he planned with a sly glint in his eye.

Fortunately, Gorgenor's flurry of gold beat back Gassid and Hart long enough.

Already sensing his certain victory, Lard Fatta Gut cried: "Not yet, my friends! Not yet shall you have your evil way with me, Dreadful Scourge of Columbus' Land!"

And with these words, he reached down and lifted his cup by its silken thread.

"Cuplet Fill Thee," whispered our stalwart, but nothing appeared in the silvery bottom of the container. His little eyes clouded with puzzled dismay. Again the Locust Leader twirped the answer, and Fatta Gut recalled the magic words. "Fill Thee Cuplet," he whispered this time, and Lo! cool water brimmed to the top of the beaker.

He took from his jousting belt's secret pocket tablets shaped and colored like the pregnant moon. Into the cup they fizzed with magic abandon, and to the shrieking consternation of that Torturing Two,

Al Kasell's pearly-white apparition rose from the Fill Thee Cup holding back six slaving acid gobblers on the end of a straining leash. Kasell released his hounds, and they began to consume many more acid minions than the Leading Dry Tablet that gourmands not-so-extraordinary used.

Lard Fatta Gut began to rub his stomach with a circular motion, and again a shriek of anguished terror rose from the Terrible Twins, for they recognized the gesture and its threat. Sneaky, silent, cunning, and invisible, Fikel Mart—more dreadful than his loud-mouthed brothers—would even now curl in the air toward them choking off breath with his gaseous claws.

They fled through the cracker roof with wails of impotent rage and disappeared, streaks of menacing phosphorescence, into the night.

Mart and Kasell made short work of the abandoned minions, while Fatta Gut cast pillowed eyes toward the goetic glass.

But Mighty Matz had fled his broth. Gut saw him roll flacidly between salami columns down the pumpernickel hall, a glistening and delicious ball, and Lard Fatta Gut hoisted Gorgenor, the golden Fork, for the final reckoning.

The End.



This is absolutely the last word (I promise) on "Cantor's War."

Dear Mr. Baen:

To one who grew up reading the editorials of the late John W. Campbell, Jr., and who, with Mr. Campbell's death, had begun to feel that something comforting and predictable had gone out of life, it is a consolation to see that his most cherished supersition continues to be disseminated in the mags. I refer, of course, to the belief that a formal education consists largely in having Truths That Must Not Be Questioned Because They Were Discovered By Great Authorities shoved down one's throat (or Throat) by Those Who Have The Proper Professional Credentials To Pass On The Revealed Truth. Mr. Christopher Anvil, a True Believer (as he might put it) in this hoary guff, goes through the old paces in "Cantor's War" with enough verve to keep me in nostalgia till they re-issue the Edsel. I'm not *ungrateful*, mind, but the interests of truth (and of national defense, in case we should ever get into a war involving an infinite number of spaceships) compel me to point out that Mr. A. Comes a cropper over infinity. (A

cropper, incidentally, that Dr. A. would never have come—value of professional credentials?)

(For reasons of brevity I have been forced to delete here an exceedingly abstruse and ((according to a mathematical friend)) valid demonstration leading to the following conclusion. —Ed.)

We suppose that each ship is capable of any finite velocity, and therefore, that each ship is capable of reaching its assigned volume in (drawing a figure from the story) 20 seconds. Then, after 20 seconds, every one of the volumes will contain three Good Guys, though each contained only one before; yet the number of Good Guys does not increase, however hard Anvil finds that to swallow. So Anvil is wrong and Dr. Phipps is right—Ah, rebellious creature of fiction!

Oddly enough, however, Anvil is right—right in practice, though wrong in theory. That is, his *reasoning* is wrong, but he gets the right *strategic* conclusion—that Dr. Phipps's plan is worthless—by accident. The real problem with the Phipps plan is not one of troop-strength, as Anvil thinks, but of logistics. Consider the fact that each ship must determine where it is to go. The ship in volume number 4216, for example, must figure out for itself that it is to go to volume number 1409. It must also determine how far from 4216, and in what direction, 1409 is. To perform these tasks, the ship must, of course, know that, at the start, it is in volume number 4216. Well, presumably it does. But *most* of the ships *don't* know their own volume-numbers: most of the numbers are

too big for any entity this side of an omniscient Deity to "know." Consider a ship whose volume-number contains 10^{10^0} digits. How does the ship *store* such a number? Not even coded into the spins of all its constituent elementary particles. There aren't nearly enough. And only an infinitesimal fraction of the volume-numbers are so minuscule as to be representable in 10^{1000} or fewer digits.

For Phipps's plan to work, each ship would have to contain a computer capable of storing integers of *any* length, and capable of carrying out complex navigational calculations with them in some fixed, finite period of time. *That* would be hard to believe, even in an s-f story.

Sincerely yours,
Peter van Inwagen
Associate Professor
Syracuse University

Dear Mr. Baen,

Ever since I started reading science fiction back in the summer of 1968 I have been collecting all the sf books and magazines I could get my hands on. I enjoyed *Galaxy* and *If* immensely under Pohl, reading every story in every issue.

However, after Fred Pohl stepped down I eventually found myself merely collecting the issues—only rarely was there anything worth reading.

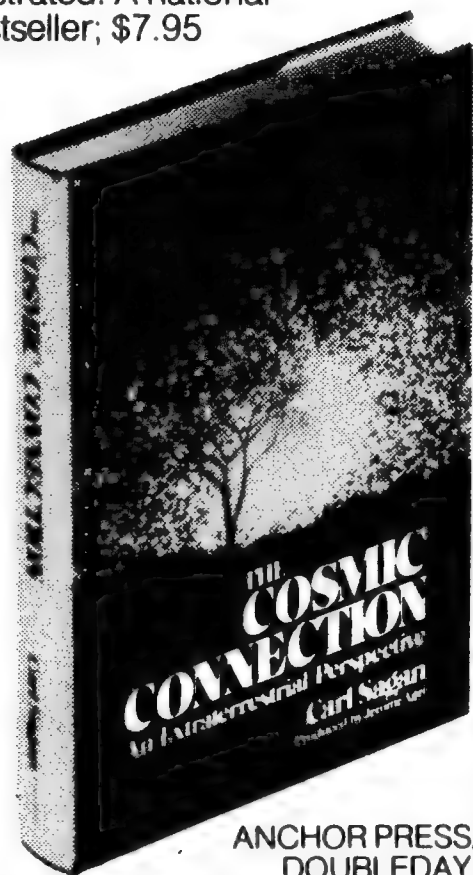
Now that you have taken over, I've been finding the magazines, once again, to be highly readable. The improvements so far have been great. The magazines, with their new departments, have become more relevant to what I feel sf is all about.

I am glad that you are publishing

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good sf of the Sense-of-Wonder variety (more of Niven!). While I believe in literary standards that are as high as possible (shades of Sturgeon!), I see no reason why this should conflict with the sense of wonder (look at Clarke).

Exotic planets, infinite Cosmos, magnificent spaceships, mysterious aliens, fantastic gadgets—hell, I love that stuff! For me, this is what sf is ultimately all about. I hope you will keep on publishing this sort of sf.

You have my best wishes (and moral support, for what it's worth) during your editorship of *Galaxy* and *If*.

Yours truly,
Jack Briggs
363 Brewer Drive
Nashville, Tn. 37211

Dear Jim,

Since you've been editing *If/Galaxy* we readers have been getting some real treats like the June All-Star issue and the new columns (I enjoy The Alien Viewpoint tremendously). It seems Lester's "Reading Room," Ted's "Galaxy Bookshelf" and Jerry Pournelle's "Step Farther Out" are getting better each issue but I miss Sf Calendar).

I was going to suggest that you have a column written by writers about Sci/Fi (like you had Fred Pohl write in June *IF*) but I can see you already thought of that (the Forum column). I was also going to suggest a bio column but you thought of that, too (Interface).

That is why I'm subscribing to *IF*; you thought of everything a reader could dream of!

The Best of Luck,
Michael Donnelly
Hellertown, Pa.

Thank you!

Dear Mr. Baen,

Let me extend my congratulations on becoming editor of *Galaxy* and *If* magazines and turning them from being bland and lifeless fare into a real treat I eagerly look forward to every month. Why I'd even extend my subscription if I could be sure of regular delivery.

You have done this primarily by instituting an editorial presence through a letters column and editorial expression and by special features which liven up interest beyond strictly the fiction published. I'm looking at the August 1974 issue of *If* and am impressed with a number of things like the new science editors article—not that I'm especially fascinated by the more detailed discussions of advances made in the physical sciences but I do like to know when anything important like impending fusion power comes about.

The real treat though is Dick Geis' column about typical Geisian things which perk up my interest a great deal usually no matter what opinion he expounds. Without being blaringly egotistical in spouting off about his likes and dislikes he manages to present clear headed educated viewpoints on all manner of topics. While I certainly don't agree with him all the time I respect his point of view.

Other columns such as Del Rey's Reading Room and the presentation of a single piece of art sans blurb are both appreciated.

Keep up the good work! You'll likely be hearing more from me.

Yours sincerely,
Gary Kimber
139 Highview Ave.
Scar., Ont. Canada

Dear Mr. Baen:

I have noted with pleasure the great improvement in *If* since you became its editor. In so noting I have put my money where my mouth is and subscribed.

There are only two minor suggestions that come to mind:

(1) Place the subscription coupon back-to-back with your "Galaxy/If S-F Mart" page. This would allow one to cut it out without doing any substantial damage to the magazine, for those of us who care about such things and not force us to resort to a Xerox machine.

(2) Have a different illustration of "the alien" by Tim Kirk for each article of "The Alien Viewpoint." He is undoubtedly the descendant of the cosmographer who appears on the dust jacket of "An Atlas of Fantasy." He strikes a cord which brings much pleasure.

Looking forward to an entertaining two years of *If*, I remain

Yours sincerely,
Jean Alexander Sharland
7024D Hanover Parkway
Greenbelt, Maryland

Dear Mr. Baen,

I would like to echo the sentiments of many speculative-fiction fans in congratulating you on the outstanding job you have done with *Galaxy* and *If* in the few short months you have edited these pub-

lications. For the past few years I have avidly read all of the science-fiction magazines that I could find. It didn't take me long to grow tired of *Galaxy* and *If*. Pardon my frankness.

However, since you have taken over, so to speak, they have become what I think are the two best magazines in science fiction. The new features are magnificent, especially Jerry Pournelle's "A Step Farther Out" column. All in all, two great magazines.

I would also like to comment on Jeff Hudson's letter in the September *Galaxy*. I read his story in the August *If* with much delight, and feel that I must congratulate him on leaving the ranks of the "heretofore unpublished nobodies." That is a clan which I am also attempting to depart.

To get to the point, the thing that I want to comment on is the statement Mr. Hudson made concerning the writers he wanted to hear more of. He named Fritz Leiber, Algis Budrys, Chip Delaney, Ursula LeGuin, James Tiptree, Jr., Philip Jose Farmer and the infamous Harlan Ellison.

By some wild coincidence, all of the above are among my favorite writers, and the last two are my very favorites. Here's to you, Mr. Hudson, you're a man after my own heart!

And here's to you, Mr. Baen, for the fantastic job you're doing with your two magazines. Keep up the good work.

Sincerely,
Alan Jacobs
8018 2nd Ave. N
Birmingham, Alabama

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